

**Injury Prevention Survey:  
Army Awareness Assessment and Needs  
Analysis, 9 July – 26 August 2014**

**PHR No. S.0023151**

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## 14. ABSTRACT

Each year, common musculoskeletal injuries disable Soldiers and result in millions of medical encounters, lost or restricted duty days, and significant medical costs. A top threat to military readiness, these are largely thought to be preventable injuries associated with overuse, sports, and physical training. To assess current injury prevention (IP) knowledge and interests and identify IP topics where awareness is lacking, an anonymous, voluntary electronic survey was disseminated via Army venues July-August 2014. Data collected included respondent demographics, job roles, awareness of injuries, risk factors, interventions, perceptions regarding leadership, and desired IP materials. Of 685 respondents, 77% were military and over half (52%) were in medical fields. Respondents requested IP information for specific activities, especially running (76%), weight training (68%), agility/calisthenics/stretching (68%), and extreme conditioning programs (60%). Respondents highlighted concerns regarding lack of unit level leadership awareness and prioritization of IP in daily operations and training. Medical respondents also noted medical profile inconsistencies as contributors to delayed rehabilitation and re-injury. The results suggest that lack of awareness may be a key barrier to IP. To reduce injury, educational materials must target actionable audiences to increase knowledge and correct misinformation regarding risk factors and effective interventions.

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**injury prevention, physical training, musculoskeletal injuries, running, weight lifting, parachuting, medical profiles, PT, education, leadership**

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# **Epidemiology and Disease Surveillance Portfolio Injury Prevention Program**

## **Injury Prevention Survey: Army Awareness Assessment and Needs Analysis**

### **Authors:**

Veronique Hauschild, MPH  
Anna Schuh, PhD

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**Injury Prevention Survey:  
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## **1 Summary**

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### **1.1 Purpose**

The Army Institute of Public Health (AIPH) Injury Prevention Program's (IPP) mission is to help identify risk factors and evaluate the effectiveness of prevention strategies for heat, cold, and musculoskeletal injuries. This effort was established to assess the current awareness and identify specific information needs and interests of key actionable audiences (e.g., Army Soldiers and Department of the Army Civilians (DAC)). The results will help prioritize development of future injury prevention (IP) educational materials that are most needed and consumable to the actionable audiences to increase awareness and correct misinformation.

### **1.2 Results**

The anonymous, voluntary survey was dispersed to Army audiences in an electronic (Vovici®) format between July 9 and August 26 2014. Over 926 persons began the survey and 685 fully completed the survey. The majority of respondents were military (77%), of which over half (52%, n= 272) are in medical fields. The understanding of risk factors regarding heat and cold injury amongst responders was reasonably good. This may be due in part to specific leadership requirements for training and accountability for these injuries. The primary activities for which responders cited desire for additional IP information included running, weight lifting, extreme conditioning, agility/stretching, as well as road marching. Injuries of greatest interest included muscle strains and tears and tendonitis. Back and knee injuries were highlighted. Lack of awareness regarding several types of risk factors and interventions highlighted additional information needs. From the responses, lack of unit-level IP awareness or support may contribute to overtraining, re-injury, and chronic conditions. This may be further exacerbated by the described lack of consistent guidance for determining medical profiles and for prescribing specific reconditioning and rehabilitation procedures. (Note: shortly after this survey, Vovici changed its name to Verint.)

### **1.3 Conclusions and Recommendations**

The survey provides insights into the current state of awareness and specific information needs of targeted Army audiences, including Army healthcare providers/educators, their patients, and other Soldiers. Since this survey cannot represent the Army population as a whole, the conclusions drawn must be interpreted with some caution. However, the conclusions are largely supported by other data or previous evaluations.

#### **1.3.1 Products for Health Providers/Educators and Soldiers**

Specific details on how to prevent injuries are needed and desired for certain injury causes and risk factors. The materials should provide adequate details to be useful for healthcare personnel to educate patients, and thus should also be consumable by typical Soldiers. Fact sheets, brochures, and cards (available through the computer) are products especially desired. Priority topics include—

- **Running.** Information was requested about proper running techniques, especially regarding conditioning practices, avoiding overtraining, proper mileage and frequency, and participating in group runs.
- **Weight Training and Extreme Conditioning.** Guidance on form and technique for weight-training and extreme-conditioning were highlighted.
- **Agility/Calisthenics/Stretching.** Information should include guidance on cross-training as well as warmup and stretching.
- **Road Marching.** A fact sheet is needed to describe common injuries and ways to prevent them for this military specific training activity.
- **Key Injury Types.** Fact sheet(s) describing common causes and prevention tactics for **back and knee injuries**, especially **sprained/torn muscles** and **tendonitis** would address customer needs.
- **Re-injury, Rehabilitation, Chronic Injury.** Fact sheet/guidance was requested regarding re-injury and rehabilitation/re-conditioning, to avoid chronic conditions (e.g., joint degeneration, arthritis).
- **Back-belts.** A fact sheet is needed to address ineffectiveness, benefits, and possible risks. This should address current Department of Defense (DOD) policy, type of belt and different uses. The use of back-belts or braces by persons with existing or prior injury needs to be further investigated.
- **Flexibility and Stretching.** While research gaps still exist, target audiences should be made aware of the limitations and unknowns.
- **Body Type and Injury Risk.** A fact sheet should be developed to help dispel myths (especially for women) that thinner people are healthier.
- **Footwear.** The risks of using cotton socks, minimalist shoes, and older running shoes should be addressed in fact sheet(s).
- **Heat/Cold Injury Risks.** Minor enhancements and continued availability of U.S. Army Public Health Command (USAPHC) heat and cold products will address audience needs.
- **Fatigue and Other Topics Needing Additional Research.** Though many responders believe fatigue increase injury risk, evidence is currently insufficient to determine what degree it influences the propensity for musculoskeletal, heat, or cold injuries. Though lesser IP priorities, evidence of the risk implications associated with age, supplements of various kinds, and post workout nutrition should also be considered for future fact sheets.

### 1.3.2 Products for Leadership

A proponent agency with the interest and authority to implement policy changes should be identified for:

- **Nonmedical/Unit Leadership Training.** Training materials (slide sets, other online or in-person training courses) are needed for leadership at the small unit level. Topics should

address impacts and importance of IP, along with basic principles and guidance on how to prevent overtraining injuries and reduce re-injuries. A model to consider is the current annual training requirements for Heat IP. Such training should be coordinated with Master Fitness Trainers (MFTs) and Army Wellness Center (AWCs). The IPP could support an Army policy mandate for routine (e.g., annual) leadership training and accountability for musculoskeletal injuries by developing the briefings and support products like those USAPHC products currently available for heat and cold injuries.

- **Medical Profile Guidance.** Based on responses from this survey, improving the consistency of Medical Profiles profile determinations along with including prescribed rehabilitation and reconditioning procedures and durations could improve the validity, credibility, and completeness of medical profiles. This in turn, could reduce the number of reinjuries and incidence of chronic injuries. Collaboration with clinicians to develop such guidance and training is recommended.

## 2 References

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See **Appendix A** for a complete list of reference information. **Appendix B** includes the Project Plan, USAPHC-Human Health Review Board (HRB) Project Planning Tool, and the final approval from USAPHC-HRB identifying this project as a nonresearch Public Health initiative.

## 3 Authority

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The USAPHC AIPH IPP has conducted this assessment according to its mission under U.S. Army Regulation (AR) 40-5, Section 2-19, to address the IP needs of Army preventive medicine activities and provide the epidemiological support necessary to address Army-wide force health and readiness requirements (Department of the Army (DA) 2007).

## 4 Background

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### 4.1 History of Musculoskeletal Injuries in Army

Common musculoskeletal and orthopedic injuries - including strains, sprains, joint derangements, and stress fractures – have been the number one threat to the medical readiness of our troops for at least 2 decades. The biggest share of the musculoskeletal injury problem continues to belong to the Army. These injuries, which predominantly involve the back, knees, and lower leg/ankle/foot, are largely preventable injuries, yet they continue to cause disability and limited physical ability among Active duty Soldiers, resulting in millions of medical encounters annually, millions of lost or restricted duty days, as well as millions of dollars in medical costs (Nindl 2013; Bullock 2010; Jones et al. 2010a,b; Ruscio 2010; Cohen et al. 2010).

These injuries very often result from various unit or personal physical training activities like sports or running (Nindl 2013; Bullock 2010; Jones et al. 2010b; Ruscio 2010; NRC 2006; Tiesman et al. 2007; Atlas of Injuries in the U.S. Armed Forces 1999; Jones et al. 1993). The injuries are most often due to repetitive overuse, not resulting from acute trauma. Even during wartime operations, “nonbattle injuries” are more predominant than battle injuries, including for medical air evacuation cases (Hauret et al. 2010).

This problem has continued for decades. In 1992, an estimated 450,000 outpatient medical encounters resulted in several million days of restricted duty. In 2002, it was estimated that a 1% reduction in incidence of lower back pain could translate to the retention of thousands of trained Soldiers, avoidance of countless lost training hours, and significant cost savings through fewer disability payments and less medical care consumption (Walters 2002). The trends are continuing: In 2012, 2.2 million DOD military medical encounters resulted from these same types of musculoskeletal injuries – and an estimated 25 million limited duty days result from these injuries (Nindl 2013). The Army has been estimated to represent the largest portion (about 40%) of these days of limited duty (Nindl 2013; Jones et al. 2010b).

## 4.2 Potential Reasons Impeding Injury Reduction

The continued high incidence of these common injuries is, in part, because Soldiers must routinely conduct physical training. Physical training is the cornerstone to enhancing physical fitness and overall human performance. But optimizing human physical performance includes minimizing injury. Lack of awareness and confusion about risk factors and effective training techniques can inhibit human performance optimization. Risks and interventions associated with running mileage, training programs, stretching, shoes and socks, various braces (e.g., ankle, back, knee, wrist), gender, age, medication use, have been investigated. In many cases, evidence provides insights into training modifications. In other cases, evidence has dispelled myths regarding the benefits of some interventions. Not all IP tactics once believed to be effective actually are – in fact, some may increase injury risks. Unfortunately, anecdotal information often drives risk prevention decisions, as contrary evidence may not be readily available.

Past scientific study of Soldier injury surveillance data has helped identify risk factors and evaluate the effectiveness of prevention tactics for reducing various heat, cold, and musculoskeletal injuries. The information produced by the AIPH IPP to date has largely focused on the publication of many technical reports to customers and scientific articles for publications in the peer-reviewed literature. The dissemination of information through technical venues is a needed element of public health practice. However, to be most effective, readily consumable information must also be disseminated to the actionable audiences (e.g., Army Military and Civilian employees, especially those who directly treat or help to educate those with injuries).

A lack of awareness regarding types of injuries, causes, risk factors, and interventions are addressed through the development of education products. However, use of training materials often does not occur without leadership support and/or policy level requirements and accountability. As an example, prevention of heat injuries is addressed by annual training requirements and strict accountability. These requirements address the recognized extreme severity of heat injuries. Though the magnitude (severity and probability) of adverse impact that musculoskeletal injuries have to the military is perhaps greater, leadership training and education requirements have not been implemented.

## 5 Methods

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### 5.1 Survey Development

Subject matter experts (SMEs) from the IPP drafted the concept and initial questions. Together with health educators from the USAPHC Health Information Office (HIO), health analysts, and statisticians experienced with survey tools, the questions were internally reviewed and refined over the course of several weeks. As audiences are inundated with electronic surveys, a low response rate was anticipated for this completely voluntary, internal program-driven project. The survey was

limited to of the primary injury types that fall under the purview of the AIPH IPP program—namely, unintentional musculoskeletal injuries and heat and cold injuries. The information needs were balanced with the desire to limit respondents' time burden with a goal of 5 -10 minutes for completion.

A copy of the survey is in **Appendix B**. The five areas addressed in the survey were:

- Demographics and job roles
- Personal injury history (past 12 months)
- Awareness: injury impacts, risk factors, and interventions
- Leadership perspectives (for nonsupervisor responders)
- Interests/needs:
  - Injury cause/activities
  - Injury types
  - Information sources and formats

## 5.2 Human Protections Review

Prior to disseminating the survey, documentation was completed and submitted for review through the internal USAPHC Human Protection Review Board (HPRB) to ensure that proper human protections were afforded to participants. Collection of Personally Identifiable Information was avoided since the instrument was designed to be anonymous data such as age, gender, and rank in pre-established broad categories.

The HPRB documentation includes the Human Protection Project Plan and the Human Protection Decision Tool (**Appendix C**).

## 5.3 Data Collection and Analyses

The survey was delivered using the Vovici software application approved for use on Army equipment and networks for survey dissemination. Data collected was analyzed by both quantitative as well as qualitative analyses of combined data with the IBM® Statistical Package for the Social Sciences (SPSS® 21) and Microsoft® Excel® 2010.

### 5.3.1 Data Collection

The 29-question survey was widely-dispersed to Army audiences as a voluntary online survey through several venues (websites, electronic news feeds) between July 9 and August 26 2014 (6.5 weeks). A unique uniform resource locator for the survey was established and all responses received in a protected data archive only accessible to selected project personnel. The survey was distributed through a variety of channels as described below. **Figure 1** provides the information associated with the survey that was submitted to various venues. It is noted that some of the requests for posting the survey link on Army-based social media sites may not have all occurred as this was a voluntary determinant of the proponent organizations. Some targeted outlets included:

- *U.S. Army Medical Internet and Social Media*—The USAPHC HIO program posted a link to the survey on the USAPHC's website, Facebook, and Twitter pages. The survey link was also sent to the U.S. Army Medical Command (MEDCOM) for posting on their social media sites.
- *Soldier Medical Readiness Campaign*—IP/Human Performance Optimization education Series. The survey was marketed during the 3<sup>rd</sup> quarter session of this training series and a link was posted to the Series website.
- *Army Social Media group*—A link to the survey with a brief description and pictures was emailed as an announcement to all of the registered Army sites with a request for dissemination. While this was voluntary determinant of various Army venues to post, posting it allowed access to (nonmedical U.S. Army Training and Doctrine Command (TRADOC), Army Materiel Command, and so forth) communities.
- *S-1 Net*—The Army's Human Resource (HR) Professional Forum (PF), facilitates the development and use of a Knowledge Management process to promote the sharing of knowledge between the institutional and operational force on HR processes, procedures, and best practices.
- *Other*—Personal distributions to leadership points of contacts in the TRADOC Maneuver Support Center.

### 5.3.2 Data Analysis

Data collected was exported to SPSS and Excel for cleaning and analysis. Quantified results were presented as statistical frequencies and percentiles For the various categories of information (described in Section 5.1). Narrative free-text responses were reviewed and grouped with pre-established response categories when possible. A trending assessment of the remaining narrative was completed by two SMEs who separately reviewed all individual responses and identified an major patterns in topics described.

### 5.4 Limitations

Due to the complexity of how the survey was dispersed throughout the Army (with the intent of reaching as many Army Soldiers and DAC), it was impossible to identify the number of personnel who received or were aware of the survey. Therefore, response rates could not be determined and the total respondent “n” is a small cross-sectional assessment of current Soldiers/DAC. The respondent pool may or may not be representative of the overall Army Soldier/DAC population.

In addition, though all responses were interpreted to the extent feasible, some question format and wording, as well as coding, may have resulted in certain inaccurate responses. Some questions could have been clarified (e.g., grouping “agility/calisthenics/stretching” as responses were sometimes difficult to interpret). Responses to open ended questions created substantial subjective interpretation; to extent feasible narrative information was minded and grouped where patterns were supported. (These improvements will be implemented in the planned future effort to conduct a follow-up survey.)

BACKGROUND: This survey was developed to obtain information from Army personnel (military and civilian) to help determine current perceptions and informational needs of various audiences in order to inform the USAPHCs future injury prevention products and dissemination efforts. Specifically, we hope to develop products that will help educate and dispel myths in an effort to help reduce future Army injury rates. This survey has been approved as public health practice through the USAPHC Human Protections Project Plan process. The online survey is anonymous and uses categorized response data. The survey uses VoVici software and all responses received and saved internal to a limited access file that will be used by project analysts to interpret and create final reports.

Request that the information in cut-lines (below) be forwarded to as many Army audiences as possible. The survey itself include an email if someone taking survey has questions Otherwise any questions regarding this request and survey can be referred to myself (as undersigned)-

=====  
"Help Fight the #1 Threat to Military Medical Readiness"

Did you know that common bone and muscle injuries such as strains, sprains, joint dislocations, and stress fractures, have been the #1 health threat to the our troops for over two decades? These musculoskeletal injuries can limit normal physical exercise or work performance, require temporary lost duty or training days, and/or result in permanent chronic pain or disabling medical conditions. In 2012, there were 25 million limited or lost military duty days. Surveillance shows similar trends continue. Perhaps even more surprising - these injuries are usually not due to wartime operations or even acute traumatic accidents. These injuries are more often do to overuse during physical training activities or sports. These same activities injure our Civilian workforce. The result is the loss of millions of military and civilian work duty days and estimated billions of dollars directed to medical, disability, and missed training/productivity. Whether military or civilian - there is a good chance you have experienced one or more of these injuries in your adult life. While accidents do happen - many of these injuries CAN be prevented by being aware of individual risk factors and scientifically proven injury reduction strategies. By increasing awareness of this information amongst Soldiers, Army Civilians, and leaders we can reduce these injuries and impacts to individuals as well as our overall Army readiness. Help us learn what information you would like to help reduce these types of injuries by completing a short survey: [survey link]

Figure 1. Request for Survey

## 6 Results

### 6.1 General

**926 persons initiated the survey and 685 fully completed the survey.** (Note: Respondents were considered to have fully completed only if they answered all questions; even if one question was unanswered, that responder was not included in total n = 685. However, there were a few occasions where total "n" may be off by a few numbers due to administration glitches in the Vovici system). This is considered a reasonably positive response size, considering the survey was completely voluntary and not mandated through any leadership channels. Though thousands had access to the survey, it is impossible to determine the number of persons aware of survey, so

response rates cannot be derived. The average time taken to complete the survey was 14 minutes (longer than the goal of 5 - 10 minutes).

## **6.2 Response Bias**

A general comparison of those respondents who completed the survey (685) versus those who did not (241) presented generally similar results, although some small potential response biases are noted. For example, of the military responders initiated the survey, officers appeared more likely to complete the survey than enlisted (who were more likely begin the survey but not complete it). For the Civilians, respondents in general scale (GS) grades 09-13 were somewhat more likely to complete than those in grades higher than GS13. Those in health care/education were somewhat more likely to complete the survey than those not in health-related positions, particularly among military respondents. A slightly higher percentage of the incomplete surveys were by responders who had experienced an injury within the last 12 months. (The analyses presented in this report focused on those responses from the *completed respondents*. See Appendix D for detailed response data.)

## **6.3 Demographics**

### **6.3.1 Gender and Age**

More men (68%) responded than women (32%). No substantial major patterns in ages were noted. (See Appendix D for detailed response data.)

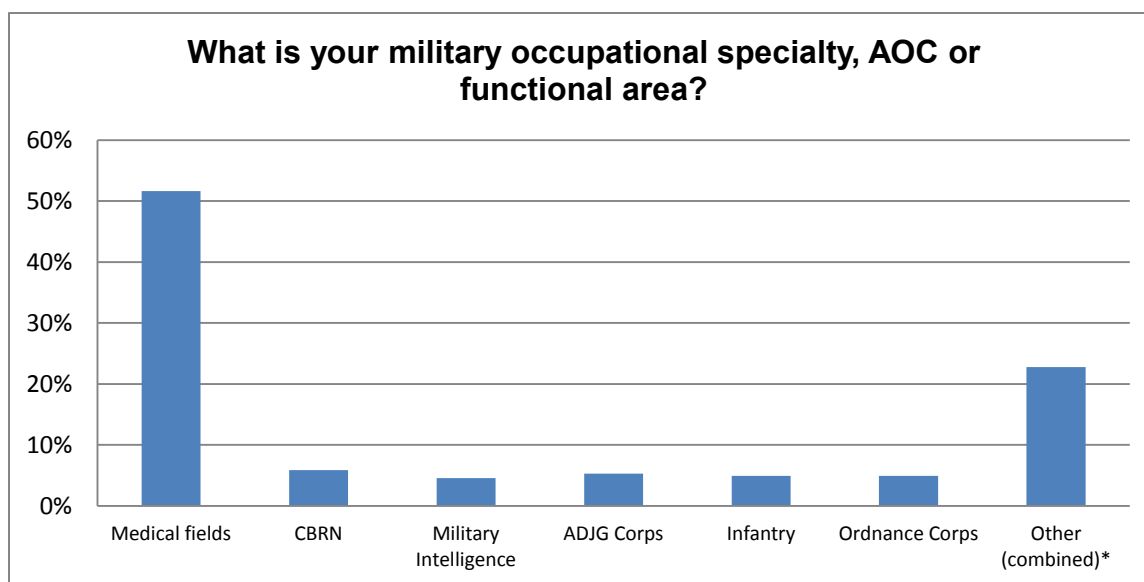
### **6.3.2 Military Affiliation and Rank/Grade**

Most (77%) responders were Army Military personnel (62% Officers, 38% enlisted), while 17% were DAC (others included contractors and retirees). While most DACs (58%) were GS 09-13, Military officers tended to be lower ranks (O1-O4 while enlisted responders tended to be ranked higher (E5-E9). (See Appendix D for detailed response data.)

### **6.3.3 Job Roles**

While 39% of the respondents considered themselves to be healthcare providers or persons within the health education community, the majority (61%) of responders were not healthcare/education providers to others. However, 57% of military personnel responders listed medical Area of Concentrations (AOCs)/ Military Occupational Specialties (MOSs). Of these, the largest portions were Physician Assistants (32%) followed by Physical Therapists (18%). Other military personnel included Chemical, Biological, Radiological, and Nuclear (CBRN) officers and technicians (enlisted), Infantry, Engineers, Field Artillery, Air Defense Artillery, Aviation, Signal Corp, Armor, Military Police, Military Intelligence, Adjutant Corp, Psychological Operations, Ordnance, and Quartermaster. With exception of CBRN (10%), individual nonmedical AOCs/MOSs were less than 5% of military responders, so were grouped as "Other" (23%). (See Figure 2 and Appendix D.)





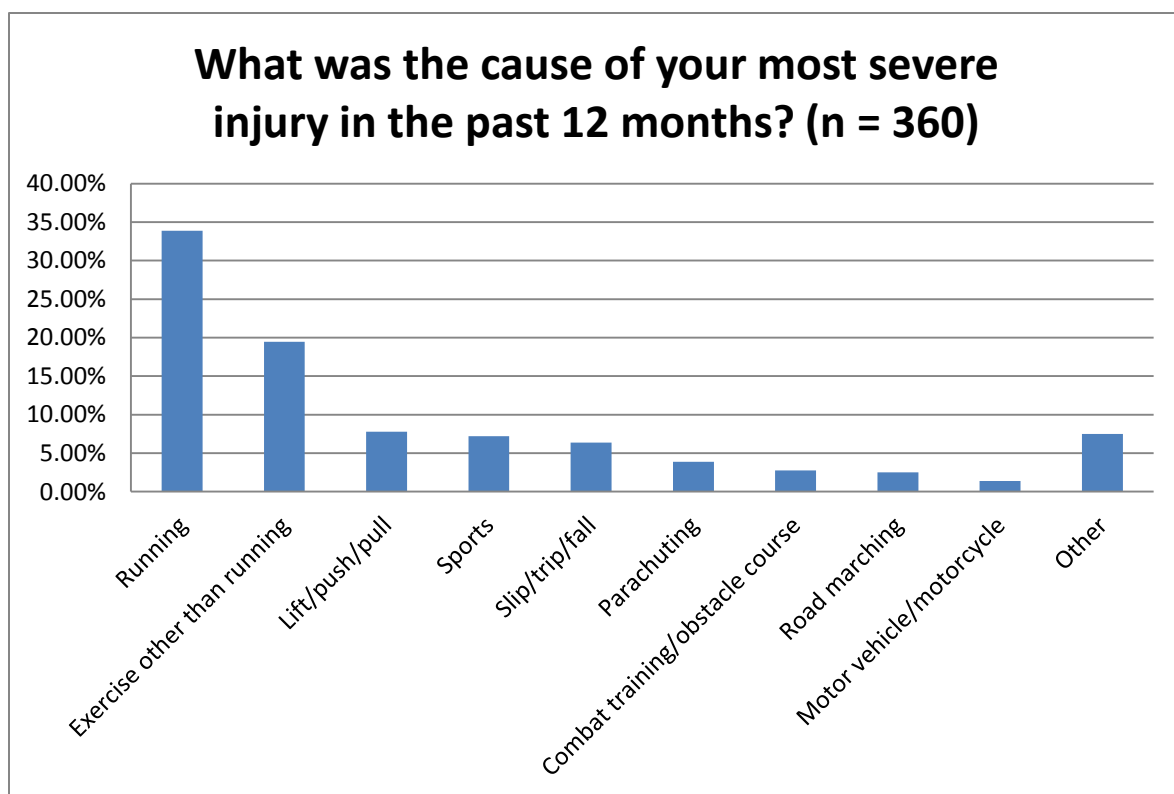
**Figure 2. Military AOCs/MOS Responders**

\*Other: MOS/AOC that made up > 5 % total respondents: Engineers, Field Artillery, Air Defense Artillery, Aviation, Signal Corp, Armor, Military Police, Quartermaster

### 6.3.4 Fitness and Injury

While most responders considered themselves to be average or above average in fitness (for both aerobic and muscular strength), the distribution ranges were normally distributed. (See Appendix D for detailed response data.)

Over half (53% of respondents, n = 685) reported injuries involving muscles, bones, tendons, ligaments, or joints in past 12 months that affected their physical ability to do daily tasks or exercises. Of these, 61% were described as primarily caused by overuse rather than a single acute incident or trauma. As shown in Figure 3, the most common cause reported was **running** (34%) followed by some type of **exercise other than running** activity (19%). The most prevalent "Other" write-in responses indicated overuse from military or occupational tasks including generic activities such as pushing/pulling or slips/trips/falls.



**Figure 3. Causes of Injuries Amongst Responders**

#### **6.4 Awareness: Magnitude and Types of Injury**

Factual statements regarding types, impacts, and significance of musculoskeletal injuries within the Army, including most common injuries (e.g., sprains/strains/tendonitis of back, knee/lower extremity) and top causes (running, physical training, sports) were provided for responders to provide level of agreement. Most respondents also generally answered with “strong” or “very strong” agreement. While this suggests a sign of awareness, it may have been partly due to the leading presentation of the facts within the survey questions. (See Appendix D for detailed response data.)

#### **6.5 Awareness: Injury Risk Factors/Interventions**

Respondents scored various risk factors and prevention measures for heat, cold, and musculoskeletal injuries by indicating whether they believed the measures “Decrease risk,” “Neither increase/decrease risk,” “Increase risk,” or whether the respondent was “Not Sure” whether a tactic had an effect on risk. For most of the factors/interventions listed, the IPP considered there to be a specific “primarily correct” answer that is adequately supported by current scientific evidence. For a few factors/interventions; however, (e.g., gender, stretching prior exercise) the evidence is either inadequate or is variable and depends on other factors.

In **Tables 1, 2, and 3** the answers considered “correct” are grouped based on scientific evidence supporting increased or decreased risk, or when the impact on risk “is not evident/is variable

depending on other factors.” The responses of all healthcare/educator providers followed the same trends as the overall responses, with slightly more “correct” answers and slightly fewer “Unsure” responses. **Tables 1, 2, and 3** present the percentage of responses for both all responders (bold, top percentiles) as well as just the responses for healthcare/educator providers.

### 6.5.1 Heat and Cold Injury

The majority of respondents identified “correct” responses pertaining to heat and cold injury risk factors/interventions (**Tables 1 and 2**). This may be due in part to specific leadership requirements for training and accountability for these injuries. Some areas of uncertainty are noted. Though IPP has prepared educational material indicating that females are at greater risk for heat injury, the majority (60%) of respondents believe gender (e.g., being female) neither increases/decreases risk of heat injury. Similarly, while Army Surveillance data (MSMR 2013) has shown that cold injuries within the military predominantly occur in younger males (e.g., 20 years), a notable portion of responders considered cold injury risk to be greater in older persons (>40 years). Some notable uncertainty about risk impact (respondents citing “Unsure” or indicated “Neither increase/decrease risk”) was indicated for **gender and age, antihistamines** for heat injury, **caffeine**, and **dietary supplements**. Minor enhancements to existing USAPHC heat and cold products (e.g., the USAPHC website, medical briefing templates, and various cards and brochures), could adequately address audience needs.

**Table 1. Responders’ Beliefs on Risk Factors for Heat Injury**

Factors/interventions that evidence indicates:	% of Total n=685 (and % n= 265 healthcare/educators)			
Increase risk of injury <sup>‡</sup>	Decrease Risk	Neither > <	Increase Risk <sup>‡</sup>	Not Sure
Older Age (e.g., >40)	2% 3%	18% 14%	74% 80%	5% 3%
Female Gender	2% 1%	60% 57%	25% 32%	14% 9%
Previous heat injury	1% 1%	4% 3%	92% 96%	3% 0%
Antihistamine use	1% 0%	17% 17%	62% 72%	21% 11%
Dehydration	1% 0%	1% 0%	96% 99%	1% 0%
Caffeine use	1% 1%	14% 10%	81% 87%	4% 2%
Strenuous activity	1% 1%	8% 5%	89% 93%	2% 1%
Alcohol use in past 24 hours	1% 0%	5% 2%	92% 97%	3% 1%
Dietary supplement use	3% 2%	12% 11%	72% 79%	13% 8%

Legend: Yellow highlighted indicates educational topic needing improvement given >10 incorrect responses.

<sup>‡</sup> Indicates current assessment of scientific evidence per IPP; key references: AIPH website for Heat Injuries: <http://phc.amedd.army.mil/topics/discond/hipss/Pages/HeatInjuryPrevention.aspx>

**Table 2. Responders' Beliefs on Risks for Cold Injury**

Factors/interventions that evidence indicates:	% of Total n=685 (and % n= 265 healthcare/educators)			
Factors/interventions that evidence indicates: <sup>‡</sup>	Decrease Risk	Neither > <	Increase Risk <sup>‡</sup>	Not Sure
Nicotine use	1% 0%	12% 6%	77% 89%	9% 4%
High exertion and heavy sweat	3% 2%	12% 10%	85% 86%	2% 2%
Prior cold injury	1% 0%	6% 5%	89% 92%	4% 2%
Dehydration	1% 0%	5% 5%	90% 93%	3% 2%
Wet socks	1% 0%	2% 1%	96% 98%	1% 0%
Tight clothing	5% 5%	11% 11%	77% 78%	7% 5%
Caffeine use	2% 1%	22% 23%	61% 69%	14% 7%
Do not decrease & may increase risk <sup>‡</sup>	Decrease Risk*	Neither > < ‡	Increase Risk <sup>‡</sup>	Not Sure
Older age (e.g., >40)	3% 1%	29% 26%	63% 69%	6% 3%
Decrease risk of injury <sup>‡</sup>	Decrease Risk <sup>‡</sup>	Neither > <	Increase Risk	Not Sure
Layered clothing	88% 92%	7% 4%	4% 5%	1% 0%

Legend: Yellow highlighted indicates educational topic needing improvement given >10 incorrect responses.

<sup>‡</sup> Indicates current assessment of scientific evidence per IPP; key references: AIPH website for Cold Injuries: <http://phc.amedd.army.mil/topics/discond/cip/Pages/ColdCasualtiesInjuries.aspx>

\* While majority responders indicate older age increases risk, in the military population the typical cold weather injury casualty is a male approximately 20 years old at the rank of E-4 or below. This is most likely due to greater exposure as opposed to higher risk – as younger Soldiers are more likely to be in cold weather operations or training than older military personnel. Soldiers with cold injuries are usually from a warm climate and are not acclimated to cold weather and not prepared to survive in those conditions. Soldiers who use alcohol, tobacco or medication could have impaired judgment and miss early warning signs of cold injuries.

## 6.5.2 Musculoskeletal Injury

Unlike for heat/cold injury, respondents were less likely to identify “correct” responses pertaining to overall musculoskeletal injury risk factors and interventions.

*Factors/interventions that increase risk.* A majority (>80%) respondents correctly identified factors for which adequate evidence supports an increased injury risk (**increased running mileage**, **dehydration**, and **prior injury**). While evidence has not definitively shown its impact to musculoskeletal injury risk, 91% of respondents (95% healthcare/educators) incorrectly identified **fatigue/lack of sleep** as a factor that would increase injury risk. While a majority (75%) of total respondents cited **smoking** increases risk, a fairly notable portion (16%) felt it had no impact. Awareness that smoking increases risk was more correctly identified by healthcare/educators (89%).

### 6.5.2.1 Factors/Interventions that don't Reduce Risk and May Increase Risk

- While most respondents (56% total, 44% health care/educator) consider **back braces** a means to decrease risk, substantial evidence indicates they do *not* reduce risk (Bullock 2010). In fact, use of back braces may increase risk in certain cases (due to weakening of certain muscles, and/or increasing reliance on support of the belt/brace, and/or incorrect type of belt/brace, and/or incorrect use of a belt/brace).
- While 19% of respondents felt the **use of over-the-counter anti-inflammatory medications prior to exercising** would decrease the risk of injury, current scientific evidence has not shown this. Due to potential side-effects of medication, as well as the potential masking pain symptoms, inflammatory medication is not a recommended form of IP.
- While most respondents (58% total, 41% healthcare/ educators) consider **stretching prior exercise** to be a means of decreasing the risk of injury, the current scientific evidence is inadequate to support this.
- Though 71% of respondents believe that having high **flexibility** decreases risk, flexibility has been shown to be a bi-modal risk factor (those with low as well as those with high flexibility are at increased risk of injury) (Jones et al. 1993, Knapik et al. 2001). In addition 58% of respondents believe stretching before exercise will reduce risk of injury. In fact, the data is still mixed, and some anecdotal evidence even suggests that stretching (at least incorrectly) can cause injury (Bullock 2010).
- A majority (56%) of respondents indicated that a thin **body type** does not impact risk; the majority of others believe it can reduce risk. However, while poor fitness has been shown to increase risk of injury (NRC 2006), current evidence shows that low BMI will actually increase risk to injuries such as stress fractures (Knapik et al. 2012).
- It is also noted that while there is strong evidence indicating that **cotton socks** can increase risk of blisters (as opposed to synthetic “moister wicking” socks), only 8% of respondents (9% healthcare/educator) were aware they increased risk.

### 6.5.2.2 Interventions that Reduce Risk

While the use of **ankle braces** in sports like basketball and parachuting has been strongly supported by scientific evidence, only 61% respondents (59% healthcare/educators) felt ankle braces reduced injury risk; while 22% total and 27% of healthcare/educators respondents felt it neither increased or decreased risk. As sports like basketball are major contributors to ankle injuries (Bullock 2010; USACHPPM 2008) educational products on this topic are warranted.

Though variable responses suggest uncertainty regarding the impact of risk from cotton socks, the majority of respondents (56%) indicated no impact to risk. This may be due to the clarity of questions pertaining to “blister” injuries.

### 6.5.2.3 Factors that do not Increase or Decrease Risk

The use of **minimalist shoes** (shoes with limited sole and “zero drop” heel to toe support) has been a popular trend in the past few years. The potential impact of these shoes on injury rates has been studied though do not provide sufficient evidence as to impact on injury (they may increase

some risks or decrease risk of injury) (Rixe et al. 2012). However, the majority of respondents (58%) indicated they believe that minimalist shoes increase the risk of musculoskeletal injury.

**Table 3. Responders' Beliefs on Musculoskeletal Injury Risks and Interventions**

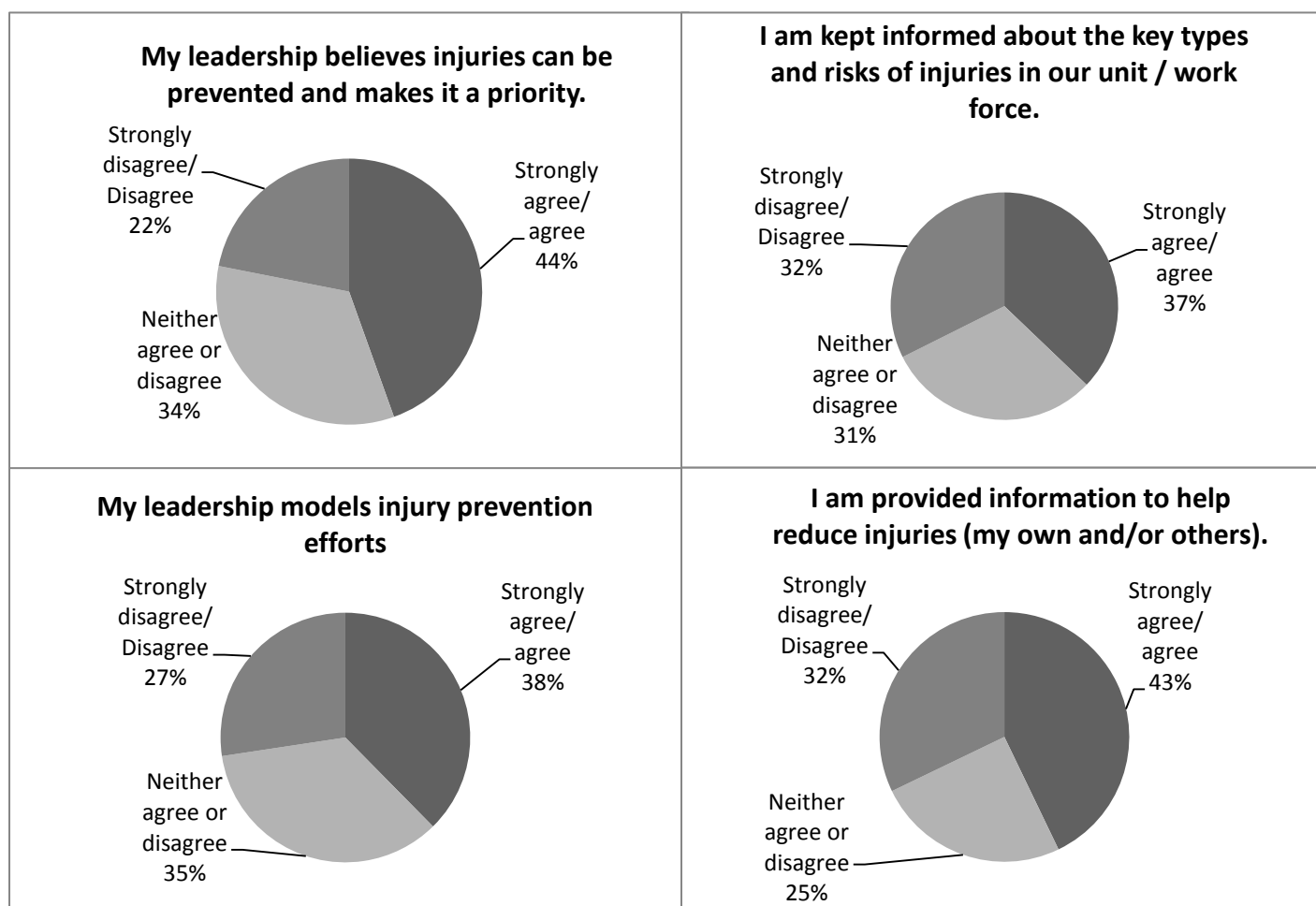
Factors/interventions that:	% of Total n=685 (and % n= 268 healthcare/educators)			
Increase risk of injury <sup>‡</sup>	Decrease Risk	Neither > <	Increase Risk <sup>‡</sup>	Not Sure
Increased running mileage	2% 2%	15% 10%	80% 86%	3% 2%
Dehydration	1% 1%	7% 8%	89% 90%	2% 2%
Prior injury	1% 1%	4% 2%	94% 97%	2% 0%
Cigarette smoking	1% 1%	16% 8%	75% 89%	9% 2%
High flexibility	71% 59%	16% 19%	10% 20%	3% 2%
Very thin body type	6% 5%	56% 53%	25% 33%	13% 9%
Do not decrease & may increase risk <sup>‡</sup>	Decrease Risk	Neither > < ‡	Increase Risk <sup>‡</sup>	Not Sure
Back brace/lift belt (for job or weight training)	56% 44%	23% 33%	13% 18%	8% 4%
Over-the-counter anti-inflammatory medications BEFORE workouts	19% 16%	39% 48%	26% 26%	16% 10%
Stretching BEFORE exercise	58% 41%	27% 38%	12% 19%	3% 2%
Reduce risk <sup>‡</sup>	Decrease Risk <sup>‡</sup>	Neither > <	Increase Risk	Not Sure
Ankle brace (for basketball, parachuting)	61% 59%	22% 27%	9% 9%	8% 5%
Cotton socks	22% 20%	57% 62%	8% 9%	13% 8%
Do not decrease or increase risk <sup>‡</sup>	Decrease Risk	Neither > < ‡	Increase Risk	Not Sure
Minimalist running shoes	5% 5%	22% 25%	58% 58%	15% 12%
Impact to risk not evident/is variable <sup>‡</sup>	Decrease Risk	Neither > <	Increase Risk	Not Sure <sup>‡</sup>
Fatigue/lack of sleep	1% 1%	5% 3%	91% 95%	2% 1%
Older age (e.g., >40)	1% 1%	16% 15%	80% 83%	2% 1%
Male gender	6% 9%	63% 58%	20% 26%	11% 7%
Energy or dietary supplements	3% 2%	27% 28%	56% 61%	13% 9%
Older running shoes	1% 0%	6% 7%	91% 92%	2% 0%

Legend: Yellow highlighted indicates educational topic needing improvement given >10 incorrect responses.

<sup>‡</sup> indicates current assessment of scientific evidence per IPP (Bullock 2010)

## 6.6 Perceptions of Leadership

The **420** nonhealthcare/educator responders were asked four questions regarding their experiences or beliefs regarding their leadership's support or interest in IP. Options to answers were to indicate Strongly Agree, Agree, Neither Agree/Disagree, Disagree, or Strongly Disagree. For purposes of interpretation, the Strongly Agree and Agree responses were combined, as were the Strongly Disagree and Disagree responses. **Figure 4** depicts the combined responses. Responses for all four questions correlated strongly ( $p < 0.01$ , correlation  $> 0.74 - 0.83$ ) with one another (e.g., a "strongly agree" for one question correlated with a "strongly agree" for other questions). A slight majority (37%-46%) of responders described positive leadership emphasis/support. One-third (~32%) had neutral (neither agreed /disagreed) perceptions. Between 22% and 33% had negative views regarding their leadership's emphasis/support regarding IP. (See Appendix D for detailed response data.)



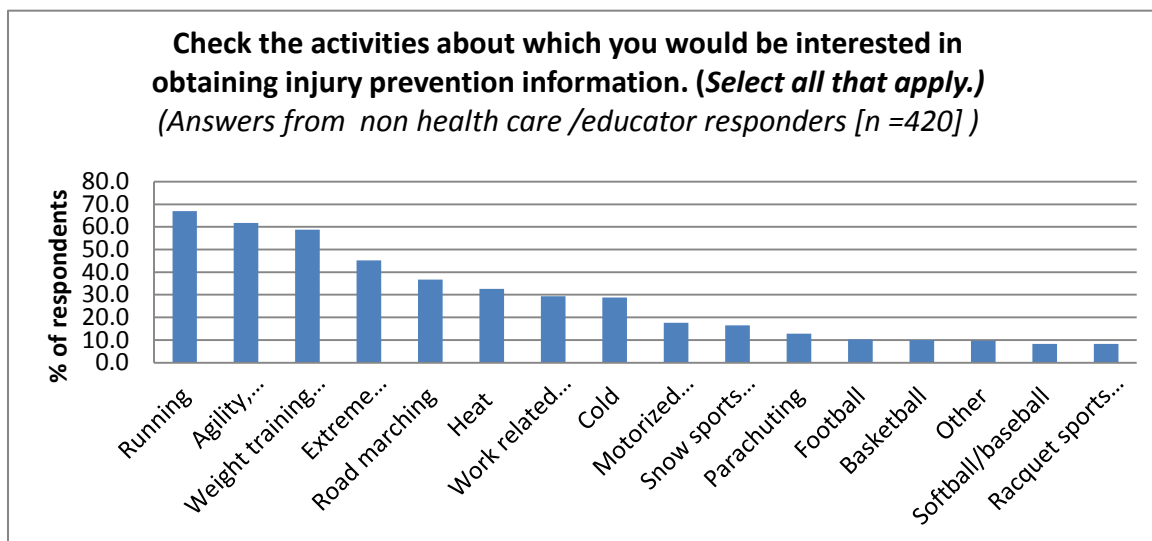
**Figure 4. Leadership Perception Regarding IP**

## 6.7 Audience Interests

### 6.7.1 Activities and Injury Causes

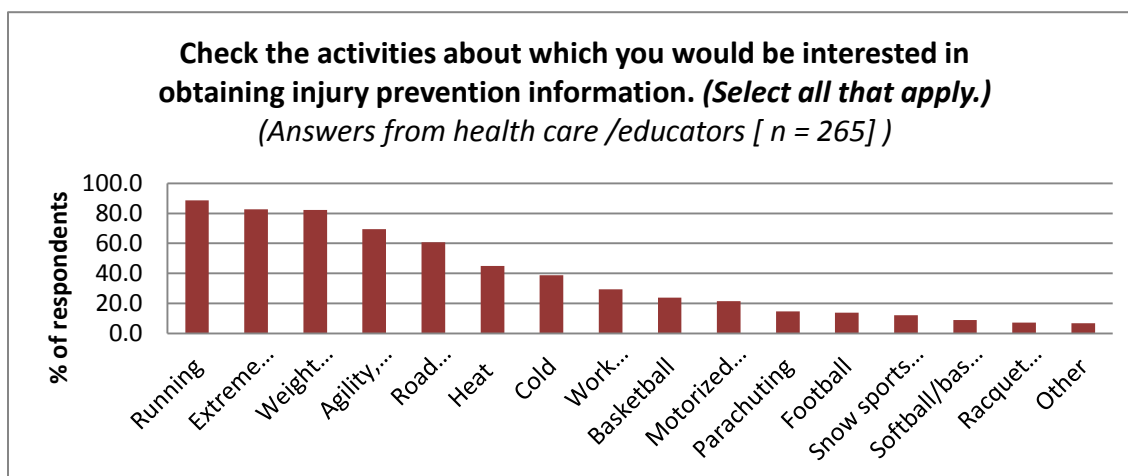
Out of 16 options (including “other”), overall responders chose an average of 5 types of activities that they would be most interested in obtaining injury prevention information (average = 4.98, standard deviation 2.84). As shown in **Figures 5 and 6**, despite some minor variations, activity interests were also very similar for just healthcare providers/educators.

The activity that the majority (76%) of all respondents wanted injury prevention information about was **running**. Other top activities included **weight training** (free weights, machines) (68%), **extreme conditioning** (60%), **agility/calisthenics/stretching** (68%), followed by **road marching** (46%). Heat and cold were ranked 6th and 7th (37% and 33% respectively), while work-related injuries, slip/trip/falls or push/pulling, motor vehicles, parachuting, snow sports, and racquet, or team sports such as football, basketball, and softball were not as frequently identified as injury-related activities of interest. Those that could not be captured as one of the existing categories were included in the “Other” category shown in Figures 5 and 6). Appendix E provides the write-in responses for other activities not listed (e.g., yoga, biking, soccer).



**Figure 5. Nonhealth Provider/Educator IP Activity Interests**





**Figure 6. Health Provider/Educator IP Activity Interests**

### 6.7.2 Types of Injuries

While information on a variety of types of injuries was of interest, **sprained/torn muscles** and **tendonitis/bursitis** were most frequently ranked by nonhealth personnel (78%/74%) as well as healthcare/educators (84%/88%). Of next greatest interest to both groups were **torn ligaments** (56%/59%) and **fractures** (48%/54%). Less than a third of all responders expressed interest in additional information on prevention of dislocations, blisters, abrasions/lacerations, or other musculoskeletal injuries. Other types of injuries not listed were identified through write in responses and especially made note of chronic conditions such as arthritis (Appendix E).

### 6.7.3 Types of Information/Education Products

Questions regarding the type and format of future disseminated information were not broken out by job position as healthcare/educator personnel\* were asked to answer questions in terms of products they would like to disseminate to others. All respondents preferred computers as a means to access information (54%) followed by pre-printed posters/cards/flyers (28%). Mobile applications were of least interest (16%). Though a variety of formats were desired, fact sheets were the primary preference (31%) followed by brochures and tip cards (25%). These were followed by more detailed technical reports or articles (18%) and posters (15%). (\*Of the 265 healthcare/health educator responders, 81% indicated that they would like products to help communicate information about risk factors and IP tactics to their patients/customers.)

The survey included an open-ended question regarding musculoskeletal and heat/cold injury information/educational sources currently used by responders. Though a myriad of local resources and magazines/hard copy handout materials were mentioned, the most common cited source was generic references to "the internet" and "google searches." Some called out specific internet based sites/sources such as the Center for Disease Control and Prevention (CDC), WebMD®, and the American College of Sports Medicine® (ACSM®). Physical Therapy/therapist sites, as well as some textbooks and journals.

#### 6.7.4 Other Issues Cited

The last question of the survey allowed responders to add any additional thoughts or commentary regarding IP. Approximately one-third of responders provided some additional written response (Appendix E). Not surprisingly, a variety of topics and viewpoints were provided. All responses were reviewed separately by two project personnel to identify general trends.

By far, the most frequently raised issue was **concerns with leadership**. Specific concerns cited the need for better unit leader training (specifically cited were Drill Sergeants, First Sergeants) to change what was described as a “suck it up” and “no pain is no gain” attitude and a lack of awareness (or concern) about the impact of training-related injuries to the Army (especially from running). Suggestions included leader IP training, mentorship, and certification.

The next most common topic was **overtraining and the need for better (detailed) guidance for athletic form/technique**. Some commenters noted that because physical training is a key to optimizing Army readiness, we should be treating Soldiers more as “athletes” and providing coaching and professional guidance to avoid injuries.

A third major topic was the **prevention of re-injury**. One suggestion made by a few responders was to provide guidance/training to unit leaders so they would not require injured/formerly injured personnel to participate in activities that are likely to result in re-injury. The last major topic of responses concerned medical care.

Two major concerns cited were 1) the availability (or lack thereof) of appropriately trained providers and 2) inconsistency with the use of the current Medical Profile system. One commenter specifically stated, “The fact that you think Soldiers want to prevent injuries means that you are out of touch with the younger generation. You need a survey on how many Soldiers have permanent profiles that raise their medical retirement rating, and the age of those Soldiers. Then you will see the problem with our Army and the medical field.” While this may be juxtaposed to comments that suggest leadership is to blame for a mentality that encourages overtraining or re-injury, it is likely that both of these cited problems exist to some degree.

## 7 Discussion and Conclusions

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This survey itself cannot be considered representative of Army population as a whole, so the conclusions drawn should be interpreted with some caution. Especially where information is drawn from subsets of respondents in free-text format, some reporting bias is expected. However, the conclusions are largely supported by other data or previous evaluations.

### 7.1 Target Audience: Health Providers/Educators and Patients/Soldiers

A large portion of respondents were military medical professionals (e.g., physician assistants, physical therapists) who have direct interactions with injured Soldiers. These healthcare providers describe an active interest in obtaining educational materials, and should be a primary target audience for IPP product development. These personnel will be a primary venue for delivering these products at a local level and monitoring their effectiveness. Since these personnel desire products to help educate patients and other Soldiers, similar products can address both audiences' needs. Products of greatest value to these audiences include fact sheets and brochures (available via computer) on specific injury causing activities and various risk factors/interventions.

### 7.1.1 General Awareness of Injury Impact and Causes

Overall, respondents demonstrated a fairly accurate awareness of the general facts regarding the magnitude of problems to the Army regarding heat, cold, and musculoskeletal injuries, including the most prominent types of injuries (lower extremities (knee, ankle), and back) and causes (e.g., overuse during sports and exercise, especially physical training and running). Specific details about how to prevent injuries are needed and desired for certain injury causes and risk factors (described further below). The materials that are currently in development should focus on providing adequate details for healthcare personnel to educate patients. For this reason, these products also need to be desired and understood by typical patients (Army Soldiers). Scientifically supported fact sheets, followed by brochures and cards products easily obtained and downloadable are especially desired.

### 7.1.2 Heat and Cold Injuries

The level of interest for materials on heat and cold injuries was moderate. While overall respondents were knowledgeable about factors that increase the risk of heat and cold injuries, some clarification or additional education regarding the impact of certain factors on heat and cold injury risk is needed. These factors include: **gender and age, antihistamines** for heat injury, **caffeine** impact on heat and cold injury, and **dietary supplements**.

### 7.1.3 Musculoskeletal Injuries

#### 7.1.3.1 Activities of Greatest Interest

- **Running.** This was the most common cause of injury cited by those respondents who reported an injury was running-related. Not surprisingly, the majority (76%) respondents identified running as an IP topic of greatest interest. Based on open-ended questions, a large portion of respondents specifically desired more information on “**how to run right,**” especially **conditioning and how to avoid over-training problems**. Information on mileage, frequency of running, and group runs was requested.
- **Weight Training and Extreme Conditioning.** A majority of both health and nonhealth personnel (>60%) identified these activities as injury prevention topics on which they desired more information. Guidance on form and technique for weight-training and extreme-conditioning were highlighted.
- **Agility/Calisthenics/Stretching.** A majority of all responders (>68%) indicated interest in additional information about “agility/calisthenics/stretching.” In hindsight this topic should have been more explicit or broken out into separate categories. Responses do not allow a clear picture of what specific information is needed. However, some free text comments suggest information needs to include guidance on cross-training as well as warmup and stretching.
- **Road Marching.** Almost half of the respondents desired additional IP guidance for this military specific training activity. Substantial scientific research has been documented as to risk factors and injury types (Knapik et al. 2012), so it would also be a useful topic to address separately in a fact sheet.

### 7.1.3.2 Injury Types

- **Sprains or Strained/Torn Muscles.** Sprains and strains/torn muscles represented the types of injuries of greatest interest by responders (>74%).
- **Tendonitis** was next most commonly cited type of injury.
- **Back and Knee.** Based on free-text responses, back injuries were a body region of keen concern, followed by knees. Chronic injuries to these body regions were highlighted.

### 7.1.3.3 Other

- **Re-Injury, Rehabilitation, Chronic Injury.** Major issues brought out in free-text responses concerned lack of guidance regarding re-injury and rehabilitation, and certain chronic conditions (e.g., joint and low back disc degeneration, arthritis). Until now, IPP has not focused on the prevention of re-injury for those that already suffer from a condition. Given responses, this is an area of notable interest for future investigations.

### 7.1.4 Risk Factors/Interventions

Of the risk factors and interventions identified in the survey, the topics considered of utmost importance to address with educational products were those where the majority of respondents were incorrect regarding the degree of risk that is imposed. Other topics were deemed critical if responses suggested that personnel may be using ineffective interventions, or are possibly not using effective interventions.

#### 7.1.4.1 Topics of Greatest Needs

- **Back Belts.** Over half respondents believe that back belts will reduce risk. Yet a DOD policy, and CDC guidance advises against their use since current evidence does not support risk reduction and suggestion potential increase risk/reliance) (Bullock 2010). Back brace/belt use by persons with existing or prior back injuries has not been clearly addressed. This topic should be further explored and addressed by educational products.
- **Flexibility and Stretching.** Though evidence shows us that those with low as well as those with high flexibility are at increased risk of injury (Jones et al. 1993; Knapik et al. 2001), most respondents believe that having high flexibility decreases risk. This may be coupled with the fact that a majority of respondents believe stretching before exercise will reduce risk of injury. In fact, current evidence is rather mixed and does not empirically prove that stretching reduces overall musculoskeletal injury. Some evidence suggests proper static training may reduce certain types of injury (e.g., musculotendinous) (Stojanovic 2011; Herbert et al. 2011; Small et al. 2008; Thacker 2004). However, anecdotal reports also suggest that stretching can cause injury. The benefits of stretching prior to exercise need to consider various factors – type of stretching, type of activity to follow, as well individual's flexibility level and potential to increase risk caused by stretching itself. At best, current information is insufficient to recommend routine stretching prior exercise for everyone. While research gaps still exist, target audiences should be made aware of the variables and unknowns.
- **Body Type and Injury Risk.** A majority of respondents believe that a thin body type does not impact risk or can even reduce risk. However, though poor fitness is known to increase risk of injury (NRC 2006; Bullock 2010; Knapik et al. 2012; Knapik et al. 2001), current evidence

shows that low BMI will actually increase risk of injuries such as stress fractures ([Knapik et al. 2012](#)). Consideration of this fact may need to be incorporated in future policies. At present, products should be developed for both health and other personnel to help dispel myths that thinner means healthier (especially for women).

- **Footware.** Responses show there is confusion regarding risks resulting from use of cotton socks, minimalist shoes, and older running shoes. Cotton socks have been shown to increase risk of blister injuries (so synthetic blends are recommended) (Knapik 2014). Minimalist shoes on the other hand, have not been shown to increase risk of injury (however, they also have not been shown to *reduce* injury) (Grier et al. 2013; Rixe et al. 2012). Though evidence to support the use of new running shoes is lacking, it is clearly a very commonly believed risk reduction strategy.

#### 7.1.4.2 Other Topics that Require Further Research

Additional research or study is needed to scientifically confirm or negate responders' beliefs regarding certain other injury risk factors:

- **Fatigue:** Over 90% of respondents believe fatigue will increase the risk of injury. Since fatigue can be defined in many ways, the risk of injury associated with fatigue has not currently been quantified in a manner supported by scientific data.
- **Other:** Age, supplements, and (post work out) nutrition were areas for which current evidence appears to be weak.

### 7.2 Target Audience: Leadership

Based on the reported experiences and beliefs regarding leadership's support or interest in IP, and the numerous open-ended responses citing leadership problems, leadership is a target audience where general impact and awareness issues still need to be addressed. Specific responses suggest that key audiences include unit commanders, Drill Sergeant's, and First Sergeants. Suggestions indicate that these leaders, who have direct oversight of physical training, would benefit from additional education, motivation, and/or policy requirements to prioritize IP objectives. Suggestions included requiring IP training or even "certification" for leaders.

Essential elements of IP are tied to leadership awareness, interest, and active support (Bullock 2010). As such, leadership-level IP guidance and educational materials should be a key part of the IPP's future information dissemination efforts. However, the benefit of such leadership educational materials would require policy-level leadership support. The IPP can develop products for use by medical and nonmedical leadership. However, a proponent agency with the interest and authority to implement mandated training/policy changes would help ensure the success of such products. A proponent agency with the interest and authority to implement leadership training/policy changes should be identified. Potential agencies include MEDCOM, Office of the Surgeon General (OTSG), and/or TRADOC.

#### 7.2.1 Nonmedical/Unit Leadership Educational Needs

A large portion of free-text comments from this survey are consistent with findings and recommendations identified in a 2002 Army War College Research Report (Walters 2002). Specifically, the leadership at the small unit level is described as frequently encouraging overtraining (especially with running) and marginalizing those who are profiled or injured. Whether

due to a mentality or the lack of education, or both, responses from the medical providers in this survey suggest this leadership problem has continued a decade and a half later:

*“Changing the mentality of injury is a must within the military. Many of my patients report injuries weeks/months/years after the initial injury and the damage has been exacerbated from continued use. It starts with the drill sergeants not wanting to look weak in front of their trainees and extends up through the COC. “Why isn’t the commander running? How is he supposed to be a leader if he can’t lead from the front?” The commander may have a back or knee injury preventing him from running and instead of looking like he doesn’t care, he drives through the pain and sacrifices his health and wellbeing for his image. Teaching people that it’s okay to seek help because no one is Superman would do wonders for maintaining the fighting force as a whole.”*

*“Leaders need to be educated. They play a direct role in helping the junior Soldiers prevent and recover from injury. In many cases common sense is lacking. For example, I am treating a patient with an ankle fracture. He is in a cast and on crutches yet was made to walk for PT.”*

Inadequate time and guidance for reconditioning and recovery, especially after a profile, is described as exacerbating the injury problem. Leaders are described as being unaware of the magnitude of the adverse impacts that injury has to Army, and/or not recognizing what they can do to reduce these injuries.

*“Most of patients that I see are musculoskeletal (low back, knee, shoulder, ankle), and most of them are due to overuse (overtraining). One of the biggest things I see is the leadership not taking care of their ‘Joes’ and allowing them to modify their training according to their injury.”*

While the belief that injury is “part of the job,” and even a way to screen out the weak, when applied at the lowest unit level this mentality appears to manifest itself at higher levels as well. Leaders should be made aware that their role is to optimize the physical performance of Soldiers—which includes minimizing injury. Lack of awareness and confusion about risk factors and effective techniques to prevent common training injuries inhibits human performance optimization and continues to be a primary threat to military readiness.

Educational products for nonmedical unit leaders are less likely to be useful than freely available fact sheets or brochures. Training materials (pre-made audio and visual training aids available online or possibly in-person training courses) are more suited for this audience. Topics to address include magnitude of adverse impacts caused by overtraining injuries, along with basic principles and guidance on how to prevent overtraining injuries and reduce re-injuries. Though visually enticing training aids such as videos may provide a means to inform some, many leaders may not be reached without the directed mandate through chain of command. For example, Leadership-mandated musculoskeletal IP training could be modelled after the existing heat IP training requirements.

Technically accurate, concise, audio-visual training materials on injury prevention are not currently available especially for leadership at the small unit level (specifically Drill Sergeants and First Sergeants as mentioned by survey responders). Topics of these products should address the impacts and importance of IP, along with basic principles and guidance about how to prevent overtraining injuries and reduce re-injuries. The AIPH IPP and others could support this gap by

developing these products. The development and eventual dissemination of such training products could be coordinated with MFTs and AWC personnel.

USAPHC training products currently made available for heat and cold injuries are briefing slide decks that have been useful primarily due to the requirements for annual training. Training material would be most beneficial with policy and implementation support, for which a proponent (e.g., an Army Command like TRADOC) with the interest and authority would implement leadership training/policy changes at the unit level.

### **7.2.2 Medical Leadership Needs**

Based on responses from this survey, additional tools and training developed in collaboration with clinical healthcare providers and medical policy makers is warranted.

Specifically, comments suggest that the medical community may inconsistently interpret existing criteria for determination of Medical Profiles (temporary or permanent). Better medical guidance for documenting specific procedures and durations for rehabilitation and reconditioning on the medical profiles also appears to be needed.

The lack of consistent application of criteria for medical profiles along with incomplete documentation of needed rehabilitation may be part of the reason that unit leaders ignore or marginalize those on a profile and do not allow proper rehabilitation. This may be a problem contributing to re-injuries and/or high rates of chronic injuries in a relatively young population.

A lack of consistent application of medical profile criteria may also encourage misuse of the medical profile system (which further discredits the Army Medical Profile system). While no one intentionally seeks injury, the degree by which persons will seek medical care and profiles is impacted by personal motivation. In a 2002 survey that asked about perceived injury behaviors (Walters 2002), most respondents felt that junior enlisted Soldiers (especially those with nonmedical problems) were more likely to overstate the effects of their injuries, while the older Soldiers (especially officers and senior enlisted) were more likely to hide or minimize injuries (so as not to impact promotion or selection opportunities). This issue of differences in personal motivation was also described by several respondents in this current survey's free-text comments. Specifically, several respondents note that some Soldiers specifically seek temporary profiles to avoid deployment or to re-deploy, while others seek permanent profiles to raise their medical retirement rating.

While policies and guidance cannot address all Soldiers' motivational differences, improving the consistency of profile determinations along with including required rehabilitation and reconditioning procedures and duration could improve the validity, credibility, and completeness of medical profiles. This in turn, could reduce the number of re-injuries and incidence of chronic injuries. These comments are consistent with the recommendations identified in a 2002 Army War College Research Report (Walters 2002).

## **8 Recommendations**

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### **8.1 Products for Healthcare Providers/Educators and Patients/Soldiers**

Specific details regarding to how to prevent injuries are needed and desired for injury causes and risk factors. The materials should provide adequate details to be useful for healthcare personnel to educate patients, but should also be desired and understood by typical patients (Army Soldiers).

Scientifically supported fact sheets, brochures, and cards (readily available electronically for easy viewing and downloading) are products especially desired. These products should be linked to available scientific references for those desiring more details. Priority topics include:

- **Running.** Include information on “how to run right,” especially conditioning and how to avoid over-training problems, mileage and frequency, and group runs was requested.
- **Weight Training and Extreme Conditioning.** Guidance on form and technique for weight-training and extreme-conditioning were highlighted.
- **Agility/Calisthenics/Stretching.** Information should include guidance on cross-training as well as warmup and stretching.
- **Road Marching.** A fact sheet describing common injuries and ways to prevent them for this military specific training activity.
- **Key Injury Types.** Fact sheet(s) describing common causes and prevention tactics for back and knee injuries, especially sprained joints/strained or torn muscles and tendonitis and other chronic injuries.
- **Re-Injury, Rehabilitation, Chronic Injury.** Fact sheet/guidance regarding re-injury and rehabilitation/re-conditioning, to avoid chronic conditions (e.g., joint degeneration, arthritis).
- **Back-belts.** Fact sheet to address ineffectiveness, benefits, and possible risks. Topics should include current DOD policy, type of belt and different uses, as well as the use of back-belts or braces by persons with existing or prior injury.
- **Flexibility and Stretching.** Stretching prior exercise is not currently recommended. While research gaps still exist, target audiences should be made aware of the variables and unknowns.
- **Body Type and Injury Risk.** A fact sheet should be developed to help dispel myths that thinner means healthier (especially for women).
- **Footware.** The level of evidence pertaining to risks of using cotton socks, minimalist shoes, and older running shoes should be addressed in fact sheet(s).
- **Heat/Cold Injury Risk.** Minor enhancements and continued availability of USAPHC heat and cold products will address audience needs. A fact sheet /brochure on these injuries could be made from information on the IPP website/briefing package templates including impacts of gender, age, antihistamines, caffeine, injury, and dietary supplements.
- **Fatigue and Other Topics Needing Additional Research.** Though many responders believe fatigue increase injury risk, evidence is currently insufficient to determine what degree it influences the propensity for musculoskeletal, heat, or cold injuries. Though lesser IP priorities, evidence of the risk implications associated with age, supplements of various kinds, and post workout nutrition should also be considered for future fact sheets.



## 8.2 Products for Leadership

Leadership-level IP guidance and audio visual training materials are a form of education materials that should be a part of the IPP's future efforts. The benefit of leadership-focused educational materials would especially benefit from policy-level support- to include potential mandated requirements. Ideally a proponent agency with the interest and authority to implement leadership training/policy changes (e.g., MEDCOM, OTSG, and/or TRADOC) could be identified for the following:

- **Nonmedical/Unit Leadership Training.** Technically accurate, concise, audio-visual training materials are on injury prevention are not currently available especially for leadership at the small unit level (specifically Drill Sergeants and First Sergeants as mentioned by responders). Topics of these products should address the impacts and importance of IP, along with basic principles and guidance about how to prevent overtraining injuries and reduce re-injuries. The IPP could support this gap by developing these products. The development and eventual dissemination of such training products could be coordinated with MFTs and AWC personnel. Training products currently made available for heat and cold injuries are briefing slide decks that have been useful primarily due to the requirements for annual training. Training material would be most beneficial with policy and implementation support, for which a proponent with the interest and authority would implement leadership training/policy changes at the unit level.
- **Medical Profile Guidance.** Based on responses from this survey, improving the consistency of Medical Profiles profile determinations along with including prescribed rehabilitation and reconditioning procedures and durations could improve the validity, credibility, and completeness of medical profiles. Subsequently, this could reduce the number of re-injuries and incidence of chronic injuries. Collaboration with clinicians to develop such guidance and training is recommended.

## 9 Point of Contact

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The USAPHC IPP is the point of contact for this project, e-mail [usarmy.apg.medcom-phc.mbx.injuryprevention@mail.mil](mailto:usarmy.apg.medcom-phc.mbx.injuryprevention@mail.mil), or phone number 410-436-4655, DSN 584-4655. Specific questions may be directed to author(s) listed at the front of this report.

Approved:



DR. BRUCE H. JONES  
Program Manager  
Injury Prevention Program

## Appendix A

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**Appendix B**  
**Survey Questions**

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**INJURY PREVENTION SURVEY** (conducted with Vovici®)

Common injuries such as muscles sprains, torn ligaments, bone fractures, and heat/cold injuries continue to temporarily or permanently disable hundreds of thousands of military personnel and Army civilian employees each year. Most of these injuries are preventable.

By taking this survey you are providing information that will help the U.S. Army Public Health Command (USAPHC) develop Injury Prevention educational materials that are tailored to your needs and interests. This is a voluntary survey and all responses are anonymous.

**The survey should take you just a few minutes to complete.** Please complete the survey in one sitting using the Next buttons provided. Do *not* use the browser's back button.

If you have any questions about or problems completing this survey, please contact the Injury Prevention Program at [usarmy.apg.medcom-phc.mbx.injuryprevention@mail.mil](mailto:usarmy.apg.medcom-phc.mbx.injuryprevention@mail.mil)

**Click Next below to continue**

(End of Page 1)

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**The first series of questions will assist the USAPHC to determine if different audiences have specific interests or information needs.**

**1. What is your military affiliation?**

- ☐ Military (Active Duty, Reserve)
- ☐ Federal Civilian
- ☐ Other: Please Specify \_\_\_\_\_

(End of Page)

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**2. Does your position involve providing patient care (health care provider) or developing / providing health education?**

- ☐ Yes
- ☐ No

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**3. Describe your position role:**

- ☐ Non-supervisory
- ☐ Supervisor / Unit leader
- ☐ Senior management / policy development
- ☐ Other: Please Specify \_\_\_\_\_

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This Page is Conditionally Shown if: (1 = Military (Active Duty, Reserve))

**4. What is your rank?**

- ☐ O1 - O4
- ☐ O5 - O9
- ☐ E1 - E4
- ☐ E5 - E9
- ☐ W1 - W3
- ☐ W4 - W5

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This Page is Conditionally Shown if: (1 = Military (Active Duty, Reserve))

**30. What is your military occupational specialty (MOS), AOC or Functional Area?  
(e.g., 11B)**

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This Page is Conditionally Shown if: (1 = Federal Civilian)

**6. What is your grade?**

- ☐ WG, GS 01-07
- ☐ GS 09-13
- ☐ > GS 13

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**7. What is your gender?**

- ☐ Male
- ☐ Female

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**8. What is your age?**

- ☐ 20 years or younger
- ☐ 21 - 30 years
- ☐ 31 - 40 years
- ☐ 41 - 50 years
- ☐ > 50 years

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**9. How would you rate the following elements of your physical fitness compared to others of your same age and gender?**

	Poor	Below average	Average	Above average	Excellent
Stamina / aerobic endurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muscle strength	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**10. In the last 12 months, did you sustain an injury involving your muscles, bones, tendons, ligaments or joints that affected your physical ability to do daily tasks or exercise?**

- ☐ Yes
- ☐ No

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**11. The most severe injury you had in the last 12 months was primarily the result of:**

- ☐ A single incident / accident such as from lifting an object, falling or tripping, an automobile accident
- ☐ Overuse resulting from repetitive movement of body parts (e.g., strained muscles, ligaments, tendons, joints, or stress fractures)
- ☐ Not sure

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This Page is Conditionally Shown if: (10 = Yes)

**12. The most severe injury you had in the last 12 months was primarily due to:**

- ☐ Job-related activity - Slipping / tripping / falling
- ☐ Job-related activity - Lifting / pulling / pushing
- ☐ Military - Road marching
- ☐ Military – Combat training / obstacle course
- ☐ Military – Parachuting
- ☐ Sports: Please Specify \_\_\_\_\_
- ☐ Exercising - Running
- ☐ Exercising – Activity other than running
- ☐ Motor vehicle / motorcycle
- ☐ Household activity
- ☐ Other: Please Specify \_\_\_\_\_

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The following questions are asked to help the USAPHC understand perceptions regarding injuries and their impact on the Army.

**13. Injuries represent the biggest threat to the Army's readiness to fight.**

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree or Disagree
- ☐ Agree
- ☐ Strongly Agree

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**14. Injuries resulting from overuse are a bigger problem to the Army than those injuries from single incidents or accidents.**

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree or Disagree
- ☐ Agree
- ☐ Strongly Agree

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**15. Preventable non-combat injuries were a leading reason for air medical evacuation during deployments to Iraq and Afghanistan.**

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree or Disagree
- ☐ Agree
- ☐ Strongly Agree

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**16. Back strains are one of the most common military injuries.**

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Disagree or Agree
- ☐ Agree
- ☐ Strongly Agree

(End of Page)

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**17. What do you consider to be the three leading causes of physical injuries in Active Duty Army personnel?**

*(Select 3)*

- ☐ Cold
- ☐ Falling / tripping
- ☐ Heat
- ☐ Motor vehicles
- ☐ Parachuting
- ☐ Physical training (e.g., running, resistance training, agility training)
- ☐ Road Marching
- ☐ Sports (e.g., basketball, football, soccer, racquetball)
- ☐ Other: Please Specify \_\_\_\_\_

(End of Page)

**18. Check how you think each of the following impacts a person's risk of HEAT injury:**

	DECREASES Risk	NEITHER Decreases or Increases Risk	INCREASES Risk	Not Sure
Older age (e.g., > 40)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Female gender	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous heat injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Antihistimine use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dehydration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caffeine use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strenuous activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol use in past 24 hours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietary supplement use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**19. Check how you think each of the following impacts a person's risk of COLD injury:**

	DECREASES Risk	NEITHER Decreases or Increases Risk	INCREASES Risk	Not Sure
Layered clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Older age (e.g., > 40)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nicotine use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High exertion and heavy sweat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prior cold injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dehydration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wet socks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tight clothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caffeine use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**20. Check how you think each of the following impact a person's risk of injury to muscles, tendons, ligaments, joints, or bones:**

	DECREASES Risk	NEITHER Decreases or Increases Risk	INCREASES Risk	Not Sure
Increased running mileage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minimalist running shoes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Older running shoes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stretching BEFORE exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over-the-counter anti-inflammatory or pain medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BEFORE workouts				
Back-brace / lift belt (for job or weight training)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ankle brace (for basketball, parachuting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cotton socks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cigarette smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Older age (e.g. > 40)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Male gender	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very thin body type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dehydration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prior injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fatigue / lack of sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy or dietary supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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This Page is Conditionally Shown if: (2 = No)

**21. To what extent do you agree or disagree with each of the following statements about those individuals in your chain of command, starting with your immediate supervisor?**

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My leadership believes injuries can be prevented and makes it a priority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am kept informed about the key types and risks of injuries in our unit / work force.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am provided information to help reduce injuries (my own and/or others).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My leadership models injury prevention efforts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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This Page is Conditionally Shown if: (2 = Yes)

**22. Do you have patients/customers to whom you would like to provide information about risk factors and ways to prevent injury?**

☐ Yes (*please answer the following questions in terms of materials that would be useful for your patients / customers*)

☐ No

(End of Page)

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**The remaining questions will assist the USAPHC determine topics and products of greatest interest to customers such as yourself.**

**23. Check the activities about which you would be interested in obtaining injury prevention information.**

- ☐ Running
- ☐ Agility, calistenics, stretching
- ☐ Extreme conditioning (CrossFit, P90X, etc.)
- ☐ Football
- ☐ Racquet sports (raquetball, tennis)
- ☐ Basketball
- ☐ Softball / baseball
- ☐ Snow sports (e.g., skiing, snow-boarding)
- ☐ Weight training (free weights, weight machines)
- ☐ Motorized vehicle / motorcycle related accidents
- ☐ Heat
- ☐ Cold
- ☐ Road Marching injury prevention
- ☐ Parachuting
- ☐ Work related falling / tripping
- ☐ Other. Please Specify: \_\_\_\_\_

(End of Page)

**24. What types of injuries are you most interested in obtaining injury prevention information about? (Select all that apply)**

- ☐ Abrasions or lacerations
- ☐ Blisters
- ☐ Dislocated joints
- ☐ Fractures (stress fractures and broken bones)
- ☐ Sprained or torn muscles
- ☐ Tendonitis or bursitis
- ☐ Torn ligaments
- ☐ Other. Please Specify: \_\_\_\_\_

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**25. How would you like to obtain injury prevention information? (Check all that apply):**

- ☐ Computer
- ☐ Mobile device
- ☐ Printed materials (posters, cards, flyers)
- ☐ Other. Please Specify: \_\_\_\_\_

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**26. What types of injury prevention information or educational materials would you prefer? (Select all that apply)**

- ☐ Tip cards / brochures
- ☐ Posters
- ☐ Factsheets
- ☐ Technical reports or articles
- ☐ Personal technical consult (phone and/or email)
- ☐ Other. Please specify: \_\_\_\_\_

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**27. Have you obtained information or products about injury prevention from sources other than USAPHC?**

- ☐ Yes
- ☐ No

(End of Page 28)

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This Page is Conditionally Shown if: (27 = Yes)

**28. Provide the organization or source of any information you have found useful:**

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(End of Page)

**29. If you have any other comments you wish to share, please write them in the space below.**

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You have reached the end of the survey. Please select Submit below.

Thank you for your time!

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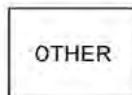
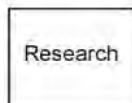
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**Appendix C**  
**Human Protections Review Documentation**

## U.S. Army Public Health Command (USAPHC) Human Protections Decision Tool

#14-297

**#14-297 Injury Prevention Survey. POC V. Hauschild. EDS/ Injury Prevention Program (IPP-P12)**

16 June 2014 received signed Decision Tool, project plan, survey and approved data protection plan.

**Purpose:** This survey will be used to obtain information from Army personnel to help prioritize and inform the IPP's injury prevention educational product development and information dissemination efforts. Specifically, the survey responses will help IPP prioritize development of educational materials, identify specific target audiences, as well as re-design its existing website.

**Plan:** We will provide the survey as a voluntary opportunity to Army military and civilian personal to provide data anonymously that help the IPP determine current perceptions and informational needs of various audiences. The survey will be disseminated through various Army Command/(ACOM) installation electronic media with the assistance USAPHC's Health Information Operations program and Public Affairs Office.

**Objectives:** Survey data will be used to: 1) develop educational materials, 2) identify specific target audiences 3), re-design existing website.

**Authority:** Under AR 40-5 'Preventive Medicine', Section 2-19, the USAPHC is responsible for providing support for Army preventive medicine activities, and provide epidemiological support necessary to address force and health readiness requirements. For this initiative, the USAPHC IPP is determining how best to prepare and disseminate it's epidemiologically-based injury prevention information actionable and as evidence-based injury prevention guidance.

**16 June 2014 Human Protections Administrator (HPA) Determination: Public Health Practice – Program needs assessment.**

**Comments from the HPA concerning decision:** This is an authorized public health needs assessment that will be essential in developing effective Injury Prevention Program educational products, as well as better understand target audiences for the program, and developing better websites for Army personnel.

All PHI/PII must be protected at all times and it is incumbent of the Project Lead to instruct and oversee any intern or other staff on the proper data protection strategies.

**Please note the following reporting obligations:**

1. Any deviation or modifications to the activity as reported in the project plan must be submitted in writing to the HPA for review and approval before implementing the change.
2. All unanticipated problems involving risks to human subjects and serious adverse events related to the surveillance population must be reported promptly to the HPA in writing.
3. All modifications, deviations, unanticipated problems, adverse events must also be reported at the time of continuing review of public health activity.
4. Notification of project completion and all final public health reports or related documents must be submitted to the HPA as soon as all documents become available.

16 June 2014

Robert N. Kang, OD, PhD  
Human Protections Administrator & Chair, Public Health Review Board

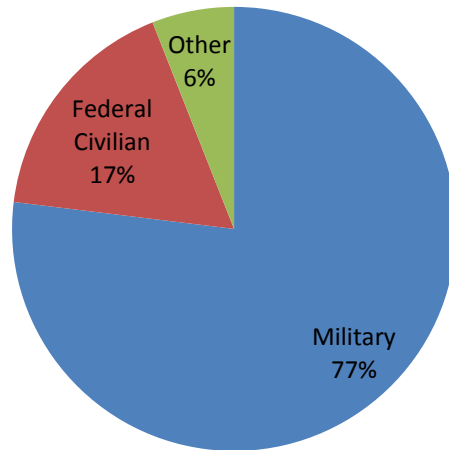
410.436.7685; robert.n.kang.civ@mail.mil

KANG ROBERT N 1042501111



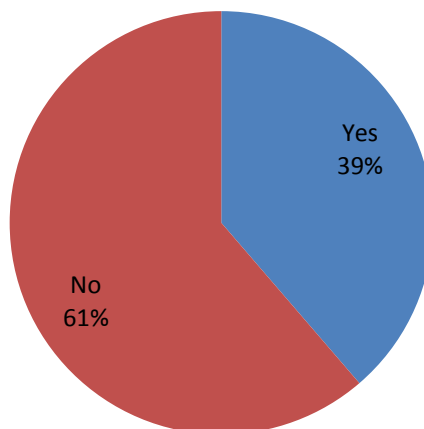
**Appendix D**  
**Detailed Survey Results**

**Question 1. What is your military affiliation?**

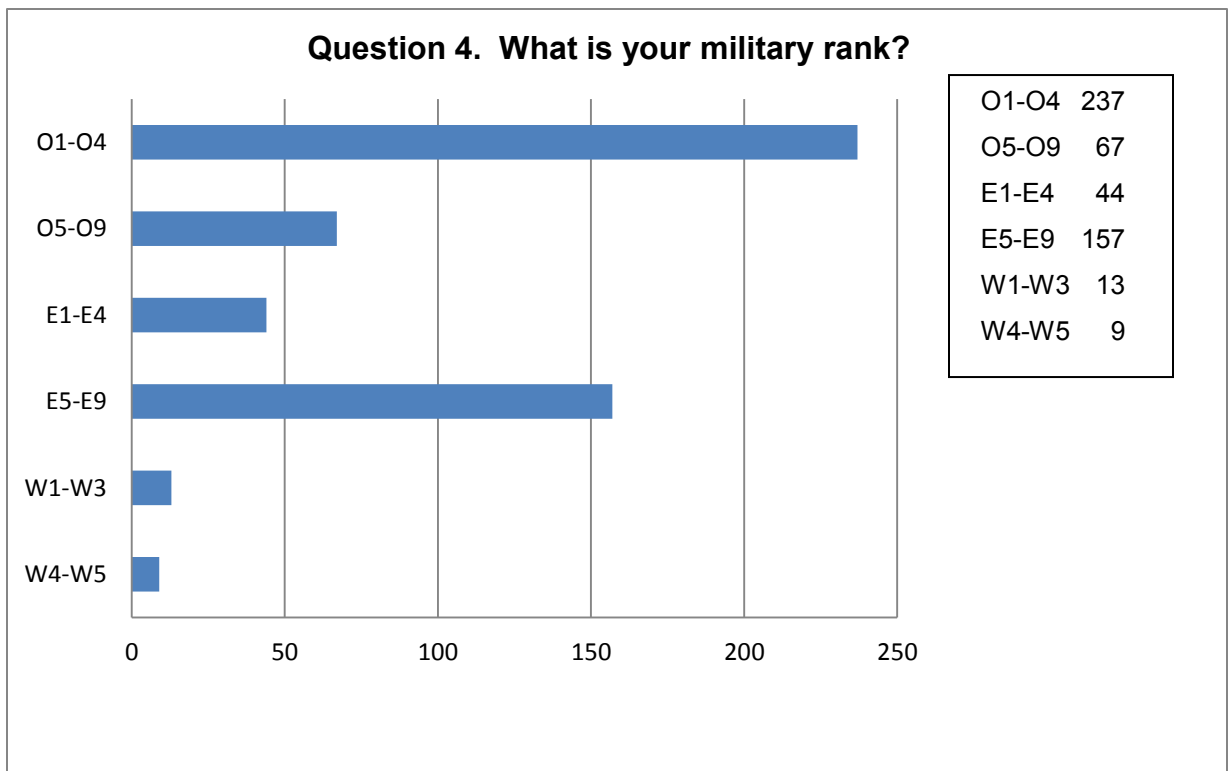
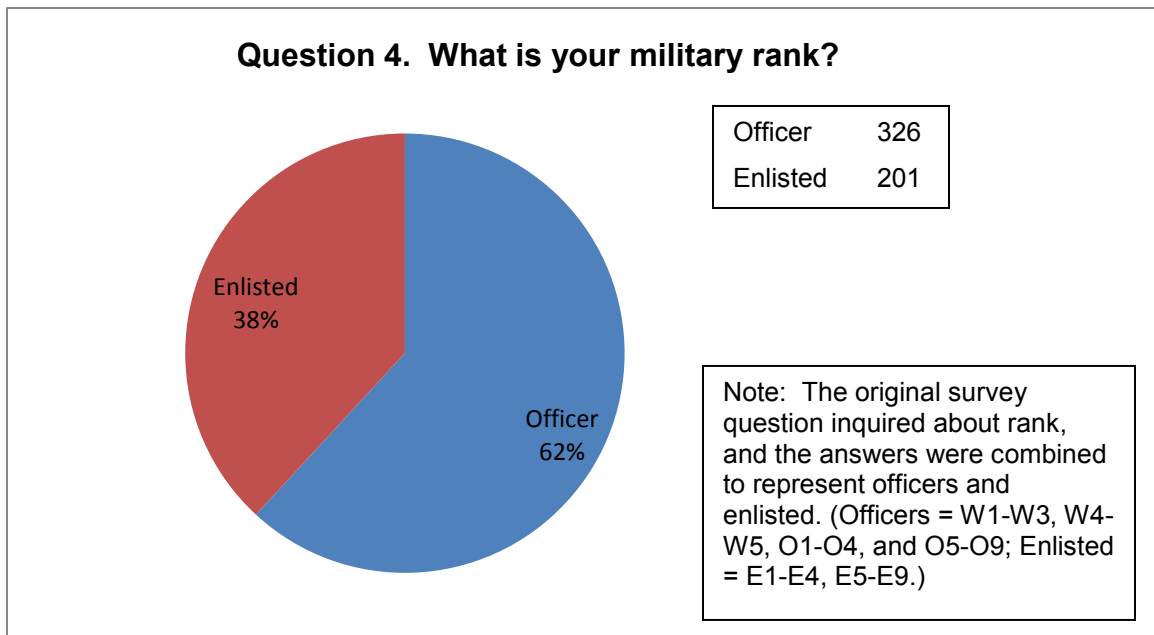


Military	527
Federal Civilian	117
Other	41

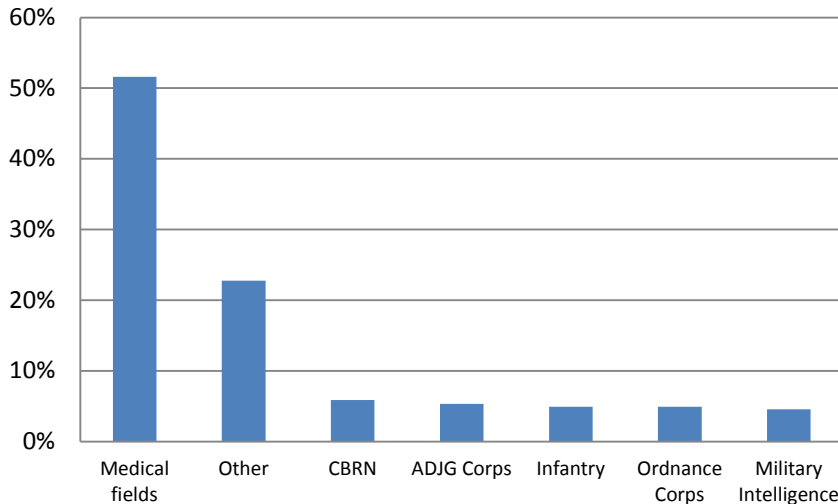
**Question 2. Does your position involve providing patient care (healthcare provider) or developing/providing health education?**



Yes	265
No	420

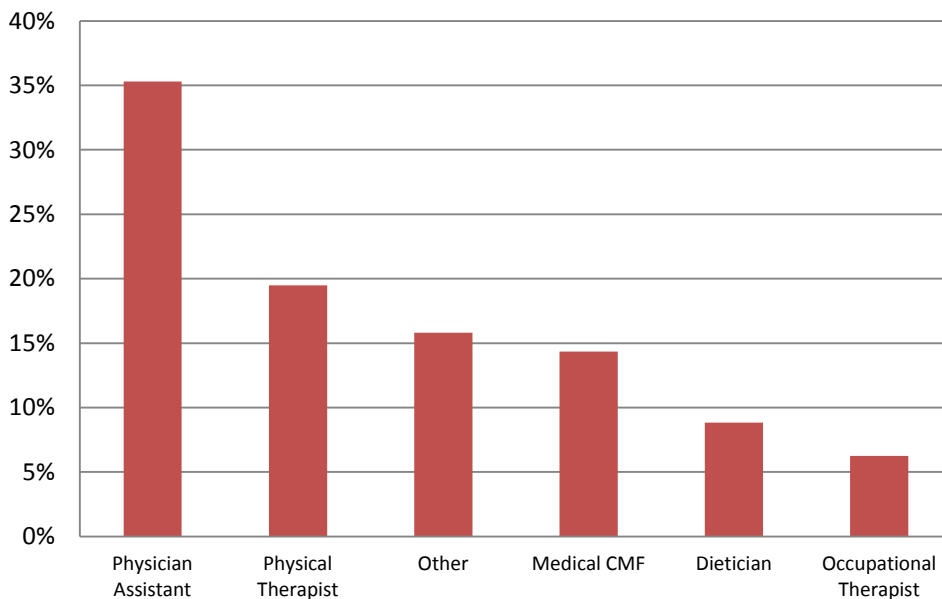


**Question 5. What is your military occupational specialty, AOC or functional area?**



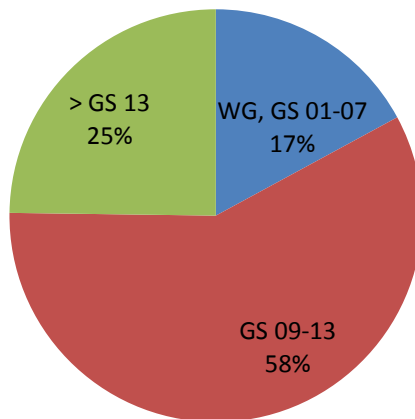
	<u>Count</u>	<u>Percentage</u>
Medical fields	272	52%
Other	120	23%
CBRN	31	6%
ADJG Corps	28	5%
Infantry	26	5%
Ordnance Corps	26	5%
Military Intelligence	24	5%
	527	100%

**Question 5. Breakdown of military medical fields:  
What is your military occupational specialty, AOC or functional area?**



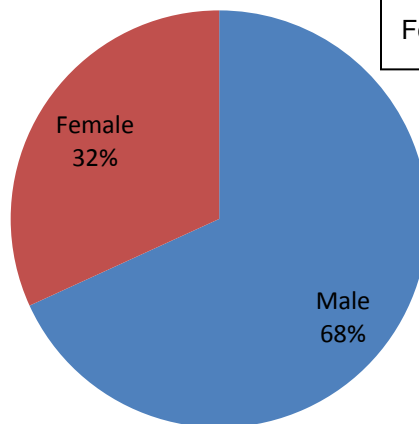
	<u>Count</u>	<u>Percentage</u>
Physician Assistant	96	35%
Physical Therapist	53	19%
Other	43	16%
Medical CMF	39	14%
Dietician	24	9%
Occupational Therapist	17	6%
	272	100%

**Question 6. What is your GS grade?**



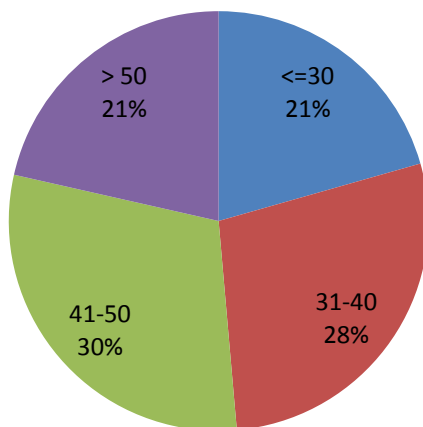
WG, GS 01-07	20
GS 09-13	68
> GS 13	29

**Question 7. What is your gender?**



Male	467
Female	218

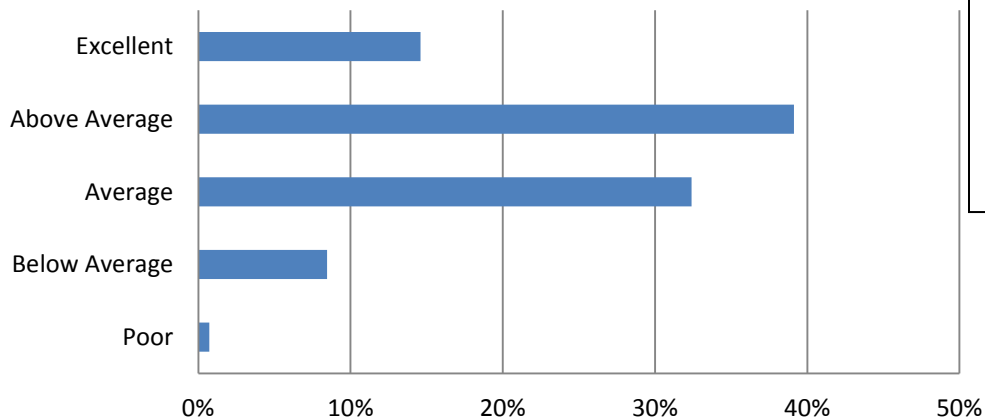
**Question 8. What is your age?**



<=30	141
31-40	192
41-50	205
> 50	147

Note: Original response choices included age groups <=20 and 21-30, which were combined for analysis.

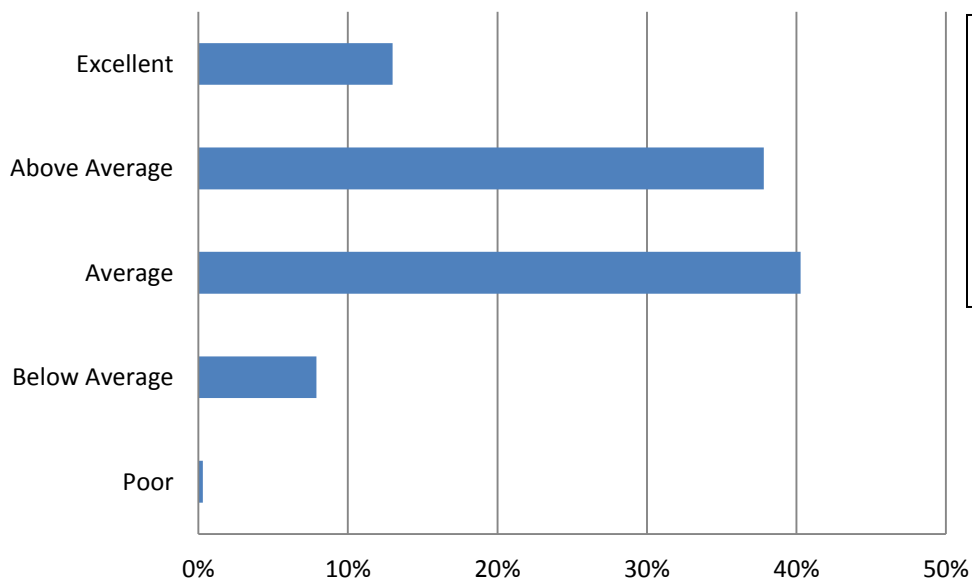
**Question 9. How would you rate the following elements of your physical fitness compared to others of your same age and gender: Stamina/aerobic endurance?**



	Count	Percentage
Poor	5	1%
Below Average	58	8%
Average	222	32%
Above Average	268	39%
Excellent	100	15%

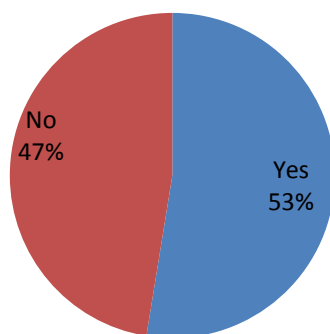


**Question 9. How would you rate the following elements of your physical fitness compared to others of your same age and gender: Muscle strength?**



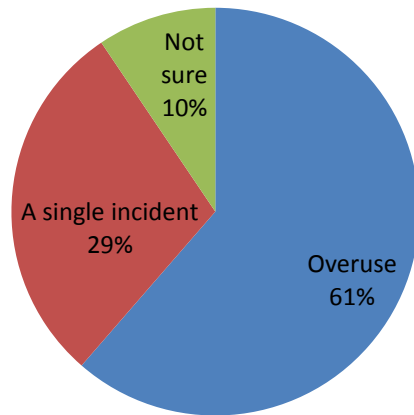
	Count	Percentage
Poor	2	0%
Below Average	54	8%
Average	276	40%
Above Average	259	38%
Excellent	89	13%

**Question 10. In the last 12 months, did you sustain an injury involving your muscles, bones, tendons, ligaments or joints that affected your physical ability to do daily tasks or exercise?**



Yes	360
No	325

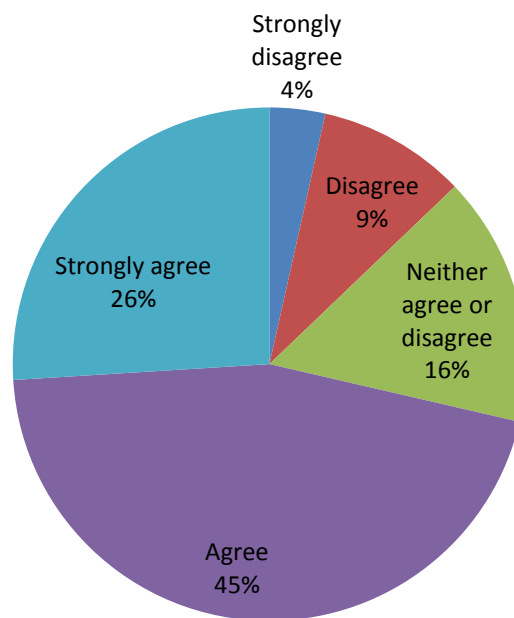
**Question 11. The most severe injury you had in the last 12 months was primarily the result of:**



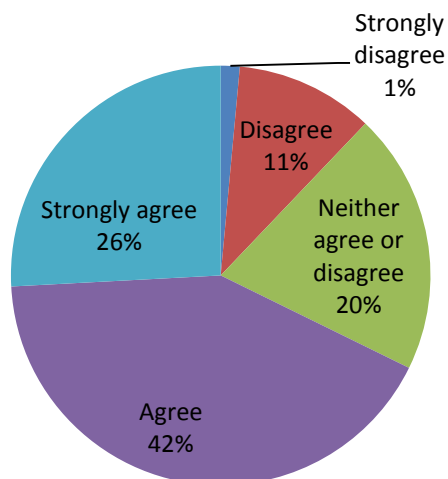
Overuse	221
A single incident	105
Not sure	34

**Note:** The answers to the following questions represent all responders (n = 685).

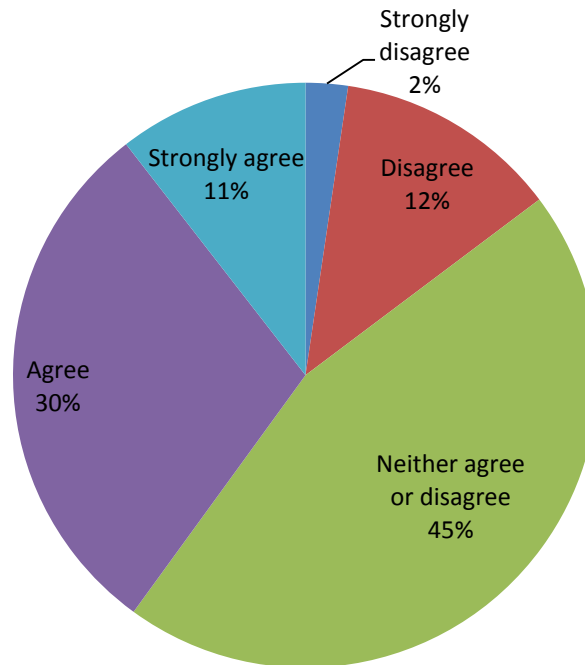
**Question 13. Injuries represent the biggest threat to the Army's readiness to fight.**



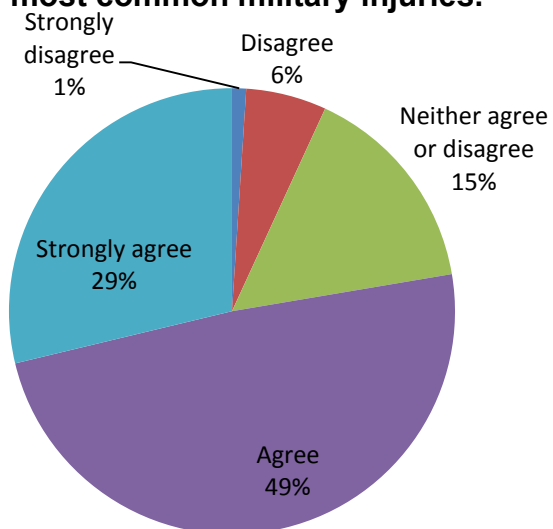
**Question 14. Injuries resulting from overuse are a bigger problem to the Army than those injuries from single incidents or accidents.**



**Question 15. Preventable non-combat injuries were a leading reason for air medical evacuation during deployments to Iraq and Afghanistan.**

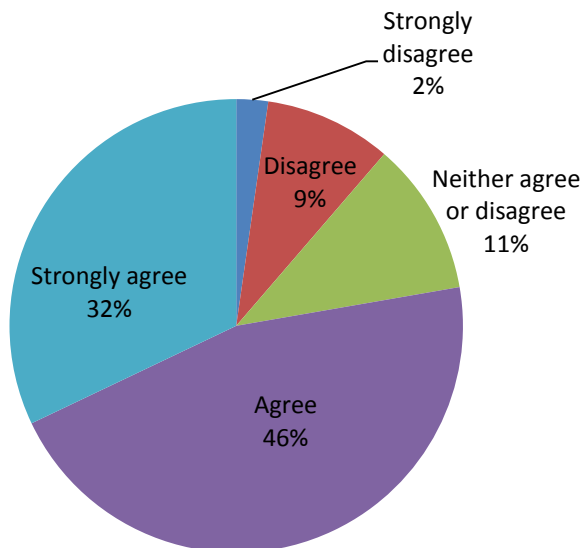


**Question 16. Back strains are one of the most common military injuries.**

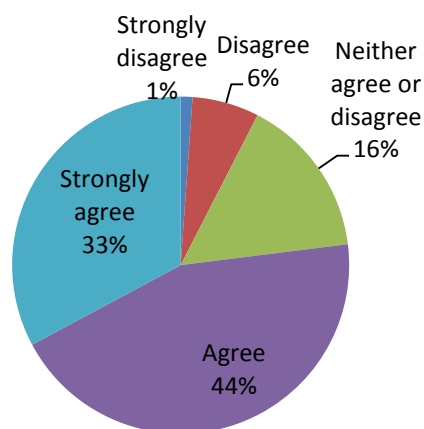


**Note:** The answers to the previous questions we re-analyzed for only those responders who consider themselves to be healthcare providers or educators (n = 265).

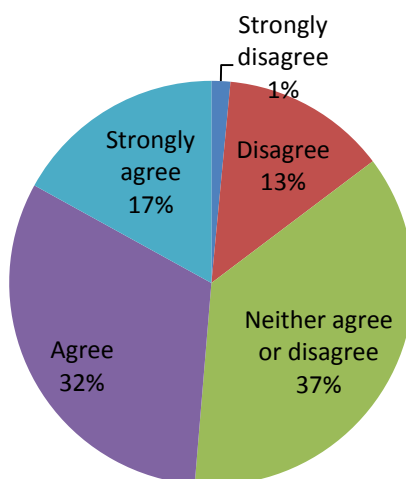
**Question 13. Injuries represent the biggest threat to the Army's readiness to fight. (Answers from healthcare providers.)**



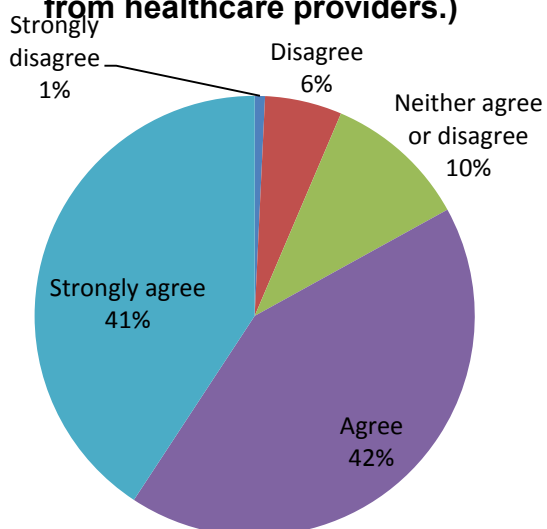
**Question 14. Injuries resulting from overuse are a bigger problem to the Army than those injuries from single incidents or accidents. (Answers from healthcare providers.)**



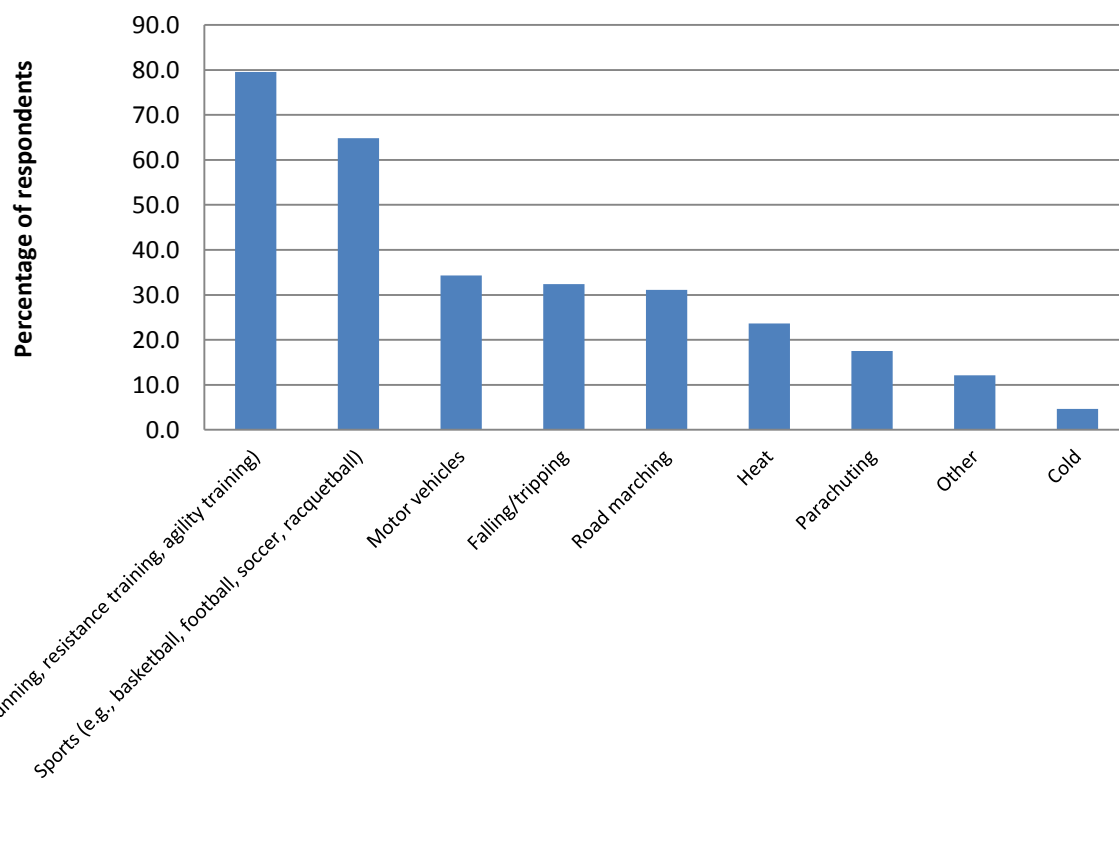
**Question 15. Preventable non-combat injuries were a leading reason for air medical evacuation during deployments to Iraq and Afghanistan. (Answers from healthcare providers.)**



**Question 16. Back strains are one of the most common military injuries. (Answers from healthcare providers.)**



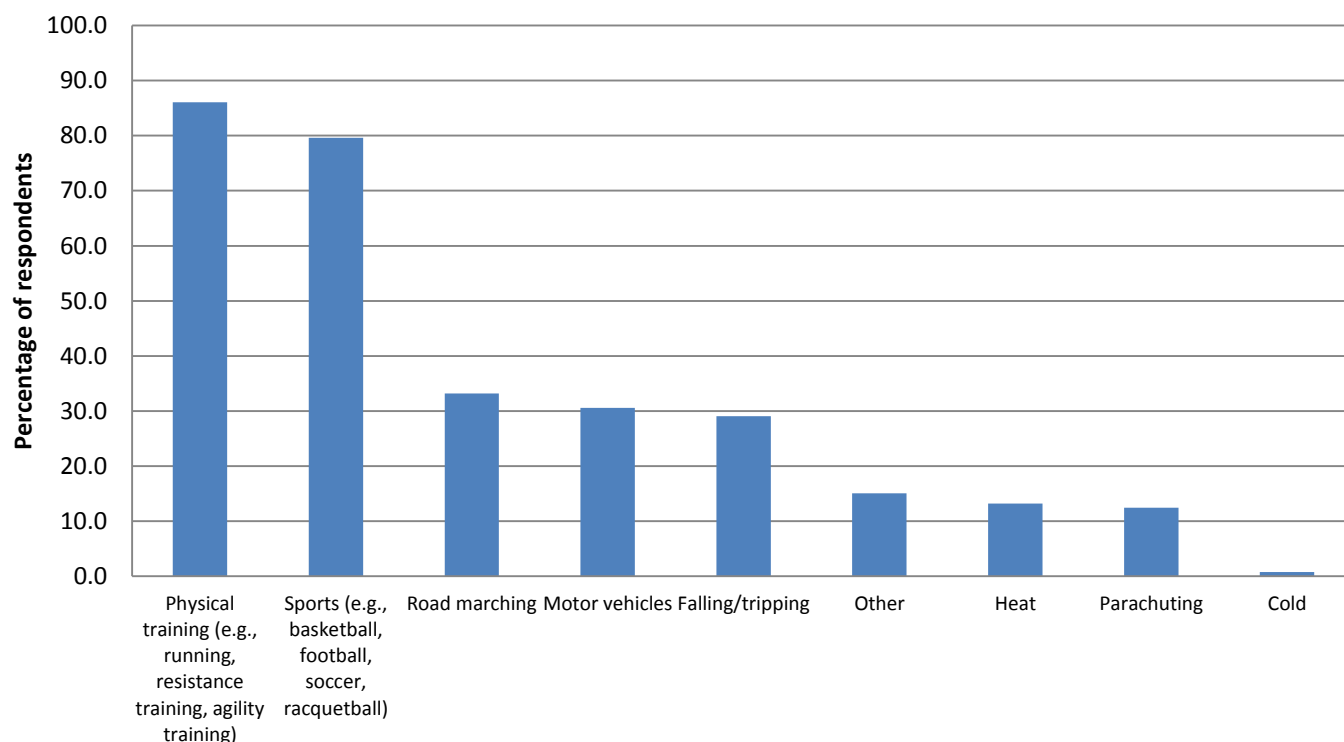
**Question 17. What do you consider to be the three leading causes of physical injuries in Active Duty Army personnel? (Select 3.)**



	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Physical training (e.g., running, resistance training, agility training)	544	1	79.6
Sports (e.g., basketball, football, soccer, racquetball)	444		64.8
Motor vehicles	235		34.3
Falling/tripping	222		32.4
Road marching	213		31.1
Heat	162		23.6
Parachuting	120		17.5
Other	83		12.1
Cold	32		4.7

**Note:** The answers to the previous question were re-analyzed for only those responders who consider themselves to be healthcare providers or educators (n = 265). There were no write-in responses that belonged in previously established response categories.

**Question 17. What do you consider to be the three leading causes of physical injuries in Active Duty Army personnel? (Select 3.)  
(Answers from healthcare providers.)**

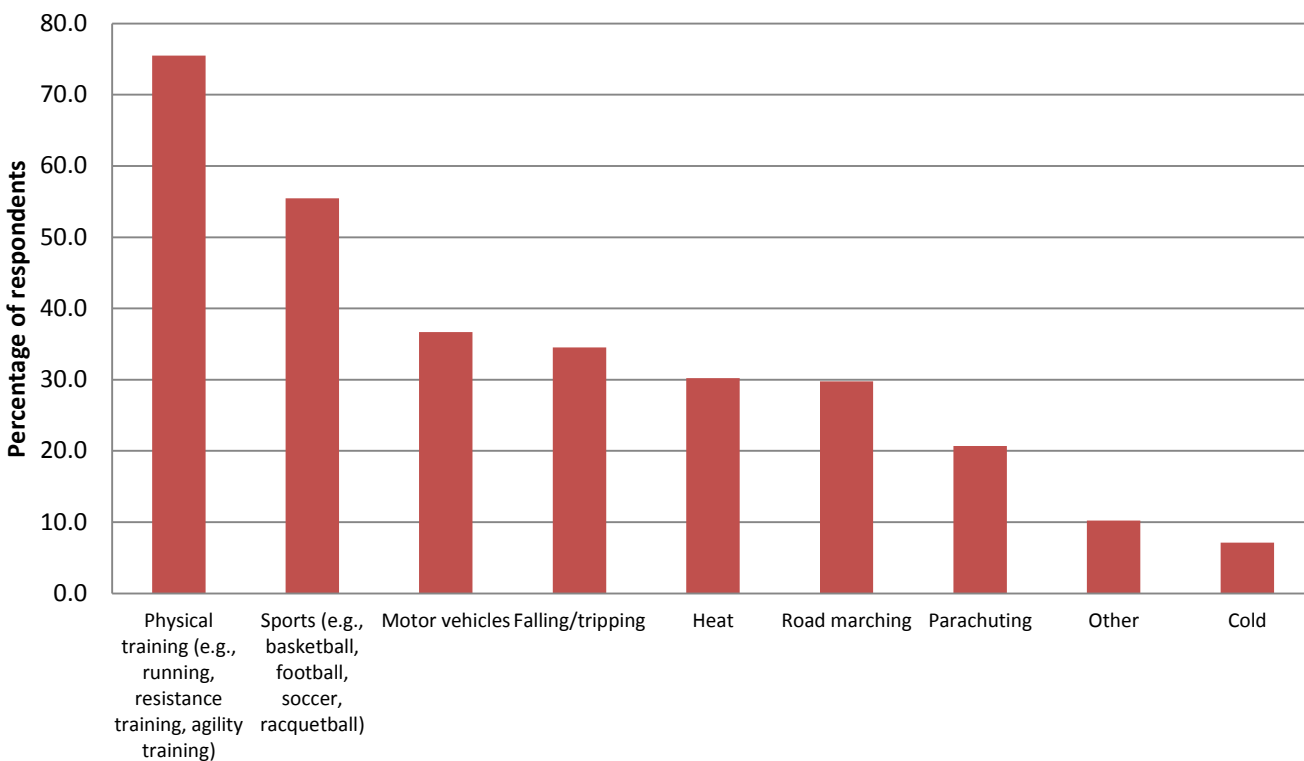


	<u>Count</u>	<u>Percentage</u>
Physical training (e.g., running, resistance training, agility training)	228	86.0
Sports (e.g., basketball, football, soccer, racquetball)	211	79.6
Road marching	88	33.2
Motor vehicles	81	30.6
Falling/tripping	77	29.1
Other	40	15.1
Heat	35	13.2
Parachuting	33	12.5
Cold	2	0.8



**Note:** The answers to the previous question were re-analyzed for only those responders who DO NOT consider themselves to be healthcare providers or educators (n = 420).

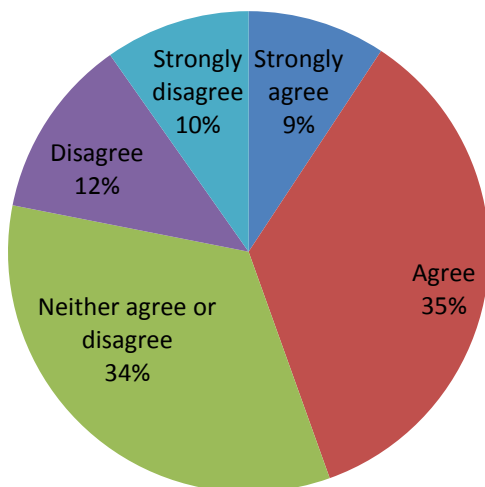
**Quesiton 17. What do you consider to be the three leading causes of physical injuries in Active Duty Army personnel? (Select 3.)  
(Answers from respondents who are not healthcare providers.)**



	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Physical training (e.g., running, resistance training, agility training)	316	1	75.5
Sports (e.g., basketball, football, soccer, racquetball)	233		55.5
Motor vehicles	154		36.7
Falling/tripping	145		34.5
Heat	127		30.2
Road marching	125		29.8
Parachuting	87		20.7
Other	43		10.2
Cold	30		7.1

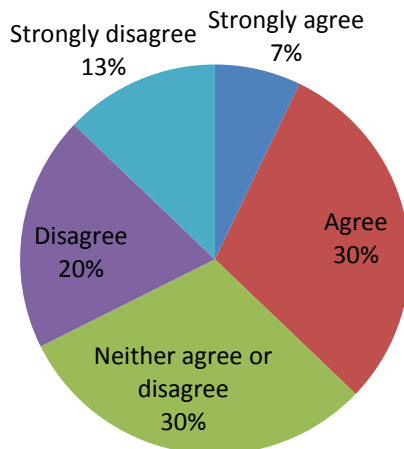
**Note:** The next four leadership support questions were only posted to those responders who did not identify as healthcare providers or educators.

**My leadership believes injuries can be prevented and makes it a priority.**



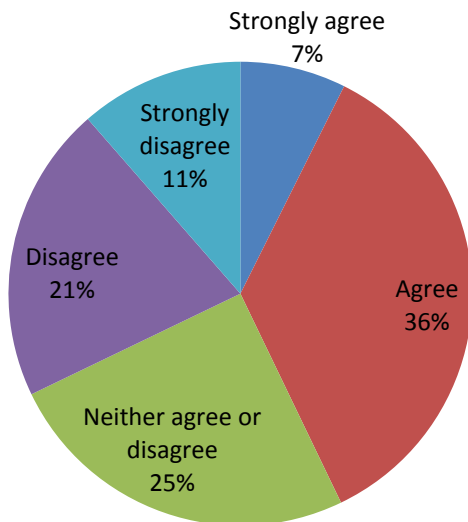
Strongly agree	39
Agree	148
Neither agree or disagree	141
Disagree	51
Strongly disagree	41

**I am kept informed about the key types and risks of injuries in our unit / work force.**



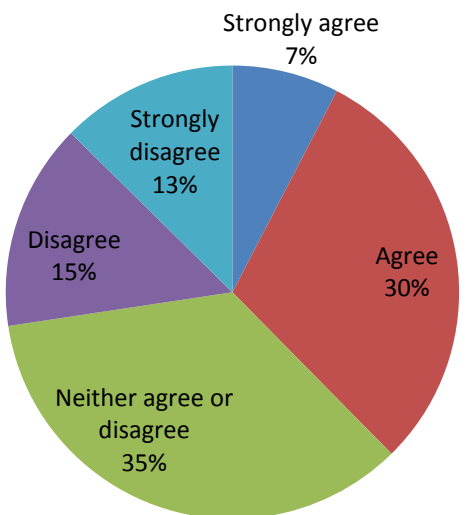
Strongly agree	30
Agree	126
Neither agree or disagree	128
Disagree	82
Strongly disagree	54

**I am provided information to help reduce injuries (my own and/or others).**



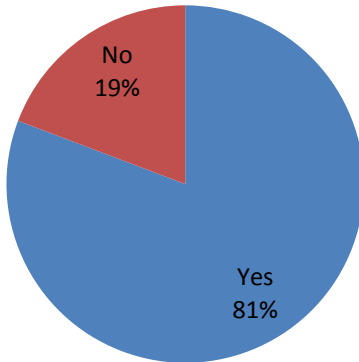
Strongly agree	31
Agree	149
Neither agree or disagree	105
Disagree	87
Strongly disagree	48

**My leadership models injury prevention efforts.**



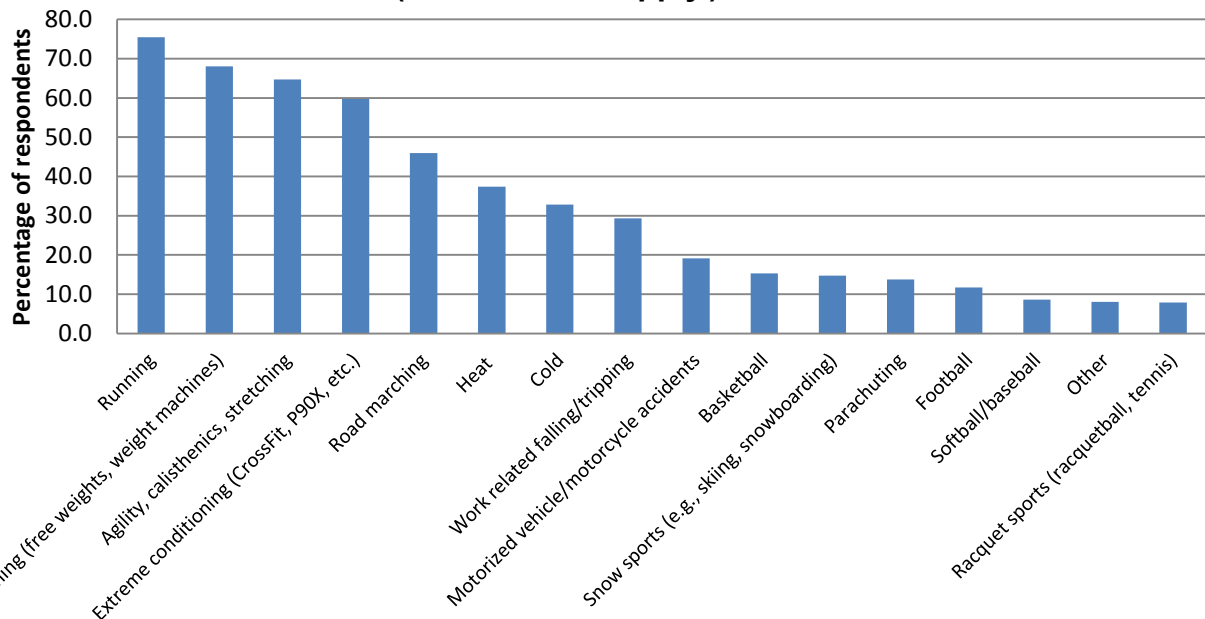
Strongly agree	32
Agree	126
Neither agree or disagree	147
Disagree	62
Strongly disagree	53

**Question 22. Do you have patients/customers to whom you would like to provide information about risk factors and ways to prevent injury?**



Yes	214
No	51

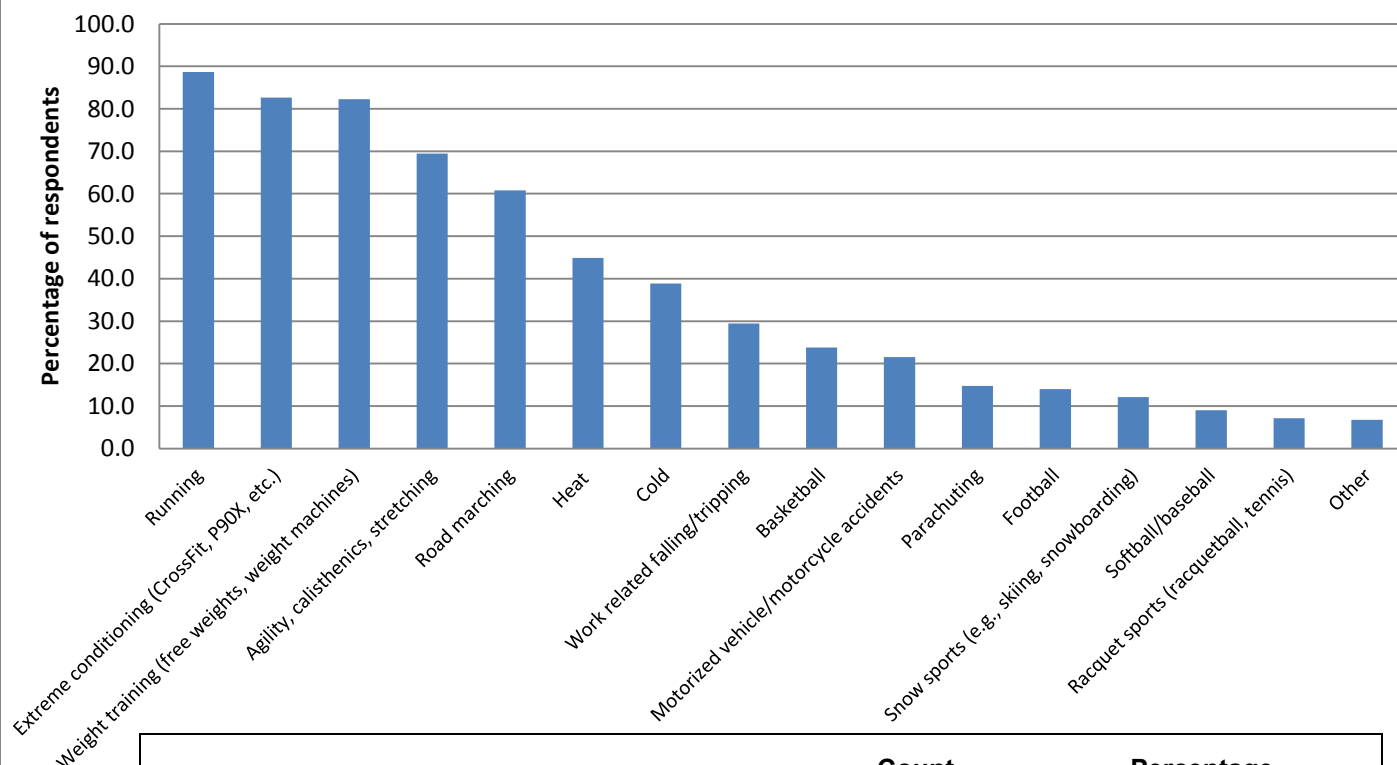
**Question 23. Check the activities about which you would be interested in obtaining injury prevention information.  
(Select all that apply.)**



	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Running	516	1	75.5
Weight training (free weights, weight machines)	465	1	68.0
Agility, calisthenics, stretching	443		64.7
Extreme conditioning (CrossFit, P90X, etc.)	409		59.7
Road marching	315		46.0
Heat	256		37.4
Cold	224	1	32.8
Work related falling/tripping	201		29.3
Motorized vehicle/motorcycle accidents	131		19.1
Basketball	105		15.3
Snow sports (e.g., skiing, snowboarding)	101		14.7
Parachuting	93	1	13.7
Football	80		11.7
Softball/baseball	59		8.6
Other	59	-4	8.0
Racquet sports (racquetball, tennis)	54		7.9

**Note:** The answers to the previous question were re-analyzed for only those responders who consider themselves to be healthcare providers or educators (n = 265). There were no write-in responses that belonged in previously established response categories.

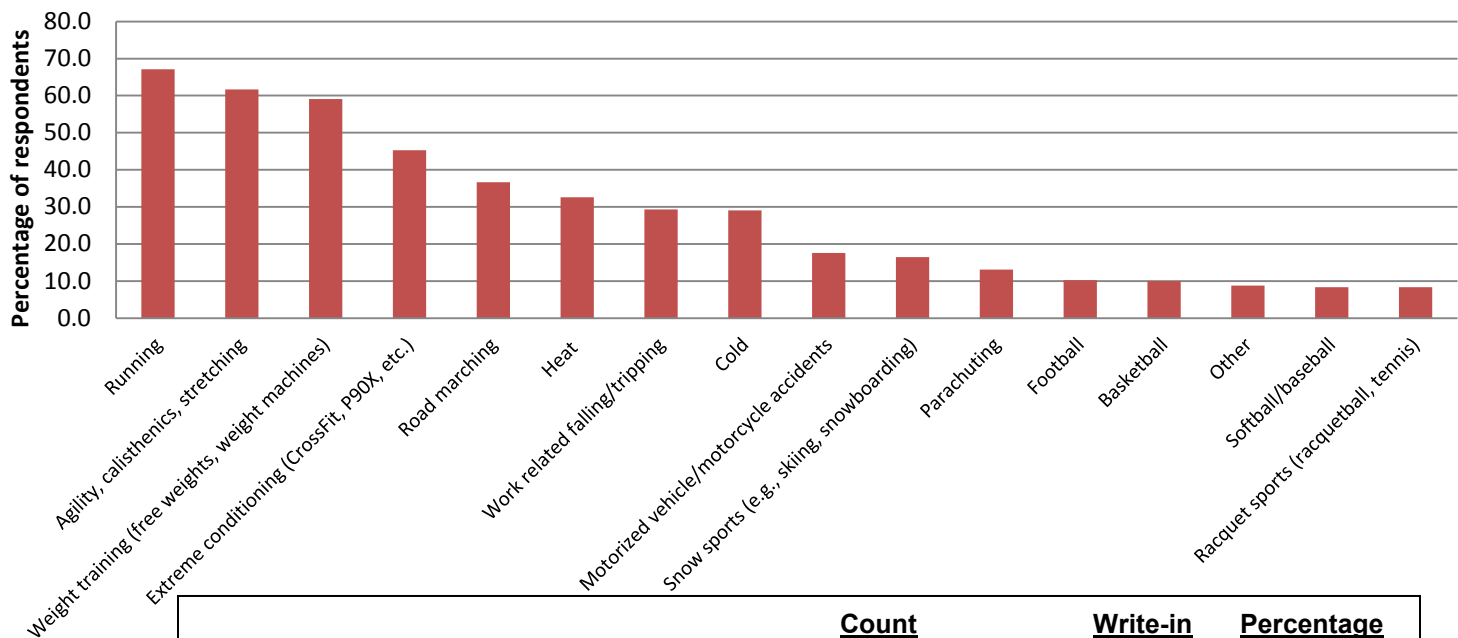
**Question 23. Check the activities about which you would be interested in obtaining injury prevention information. (Select all that apply)**  
**(Answers from healthcare providers.)**



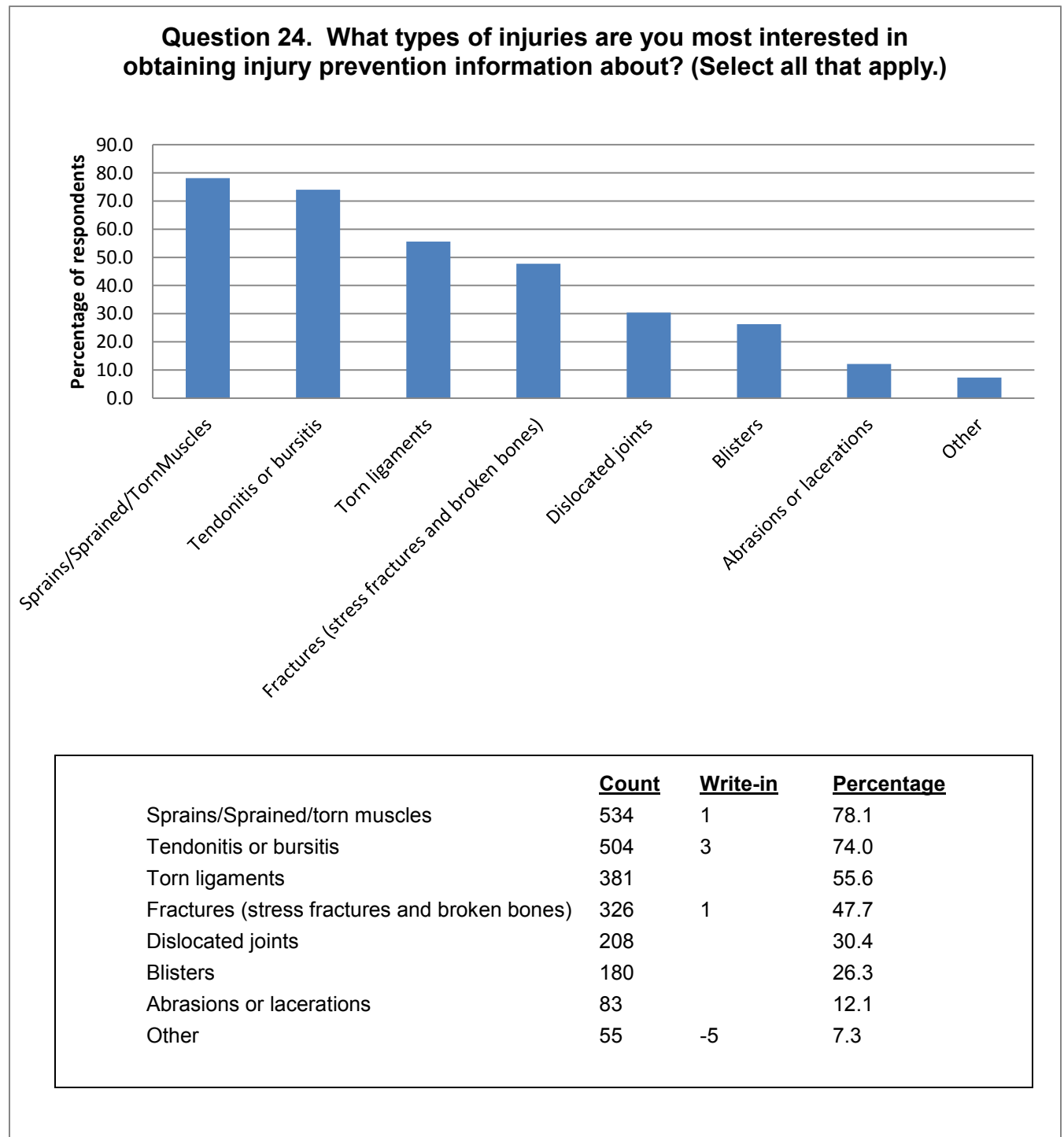
	<u>Count</u>	<u>Percentage</u>
Running	235	88.7
Extreme conditioning (CrossFit, P90X, etc.)	219	82.6
Weight training (free weights, weight machines)	218	82.3
Agility, calisthenics, stretching	184	69.4
Road marching	161	60.8
Heat	119	44.9
Cold	103	38.9
Work related falling/tripping	78	29.4
Basketball	63	23.8
Motorized vehicle/motorcycle accidents	57	21.5
Parachuting	39	14.7
Football	37	14.0
Snow sports (e.g., skiing, snowboarding)	32	12.1
Softball/baseball	24	9.1
Racquet sports (racquetball, tennis)	19	7.2
Other	18	6.8

**Note:** The answers to the previous question were re-analyzed for only those responders who DO NOT consider themselves to be healthcare providers or educators (n = 420).

**Question 23. Check the activities about which you would be interested in obtaining injury prevention information. (Select all that apply.)  
(Answers from respondents who are not healthcare providers.)**



	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Running	281	1	67.1
Agility, calisthenics, stretching	259		61.7
Weight training (free weights, weight machines)	247	1	59.0
Extreme conditioning (CrossFit, P90X, etc.)	190		45.2
Road marching	154		36.7
Heat	137		32.6
Work related falling/tripping	123		29.3
Cold	121	1	29.0
Motorized vehicle/motorcycle accidents	74		17.6
Snow sports (e.g., skiing, snowboarding)	69		16.4
Parachuting	54	1	13.1
Football	43		10.2
Basketball	42		10.0
Other	41	-4	8.8
Softball/baseball	35		8.3
Racquet sports (racquetball, tennis)	35		8.3

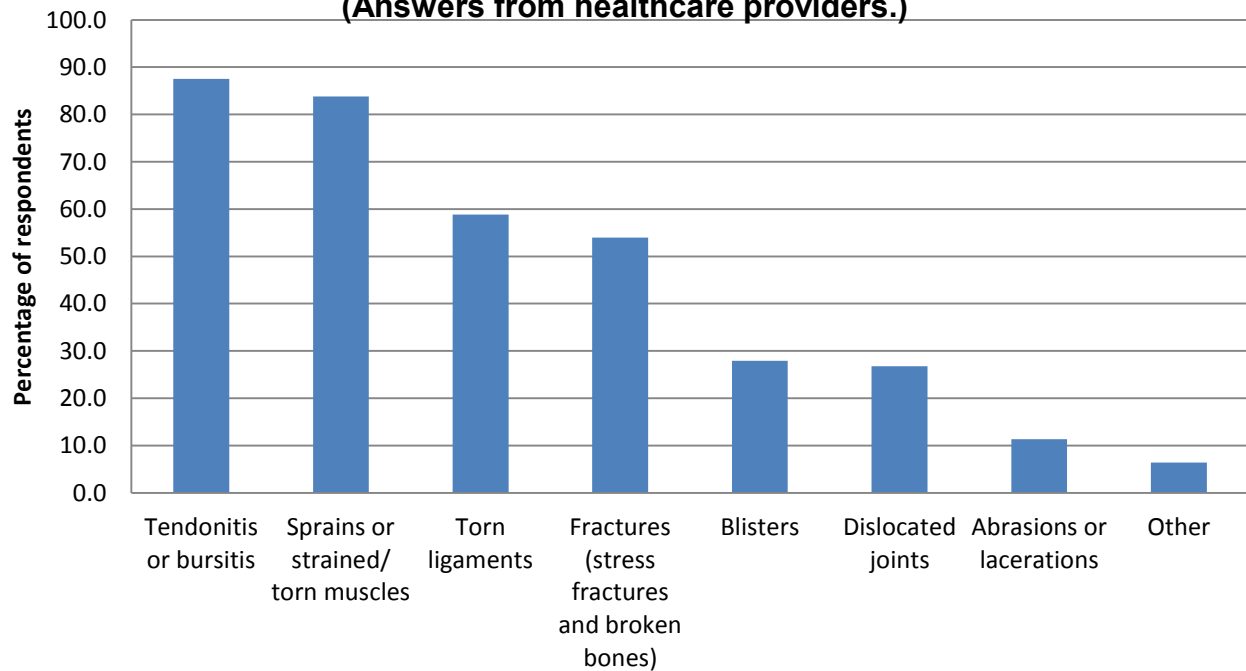


**Note:** The answers to the previous question were re-analyzed for only those responders who consider themselves to be healthcare providers or educators (n = 265). There were no write-in responses that belonged in previously established response categories.



**Question 24. What types of injuries are you most interested in obtaining injury prevention information about? (Select all that apply.)**

**(Answers from healthcare providers.)**



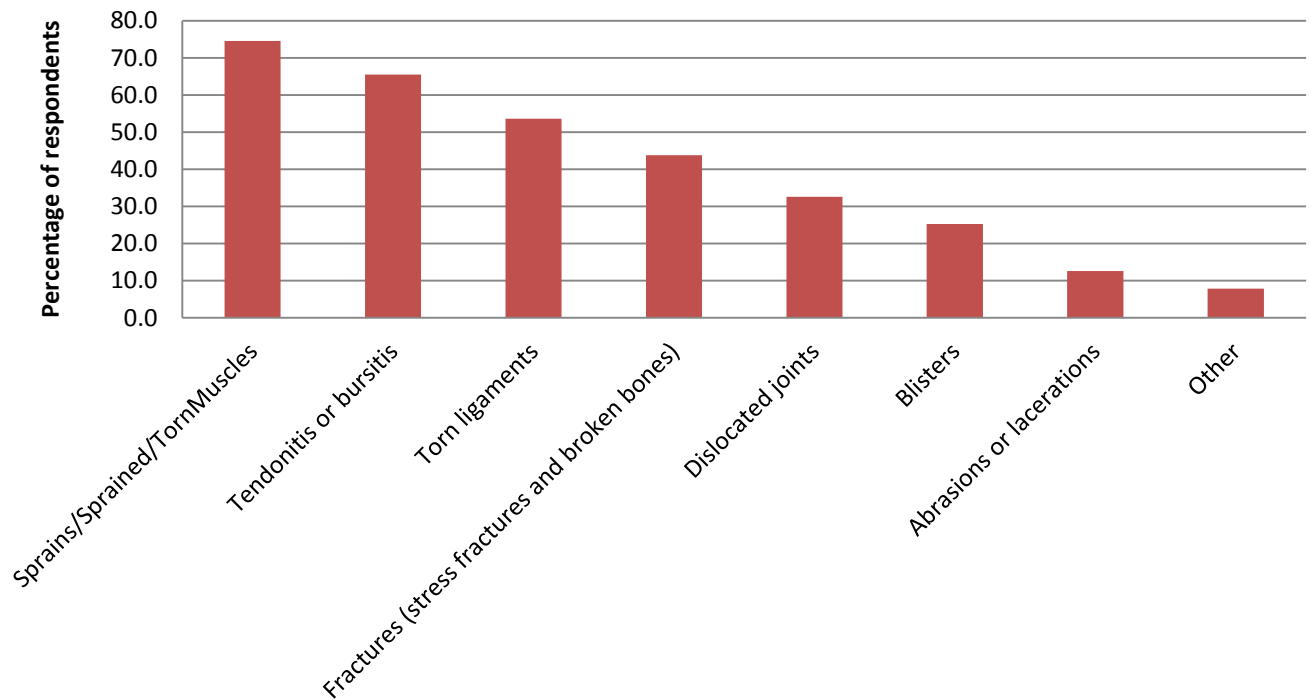
	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Tendonitis or bursitis	231	1	87.5
Sprains/Strained/torn muscles	222		83.8
Torn ligaments	156		58.9
Fractures (stress fractures and broken bones)	142	1	54.0
Blisters	74		27.9
Dislocated joints	71		26.8
Abrasions or lacerations	30		11.3
Other	19	-2	6.4

**Note:** The answers to the previous question were re-analyzed for only those responders who DO NOT consider themselves to be healthcare providers or educators (n = 420).

**Question 24. What types of injuries are you most interested in obtaining injury prevention information about?**

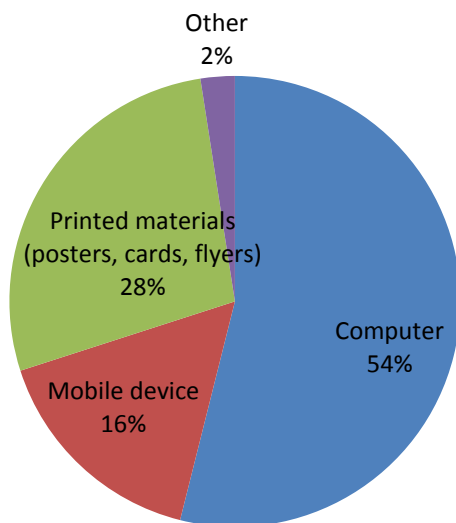
**(Select all that apply.)**

**(Answers from respondents who are not healthcare providers.)**



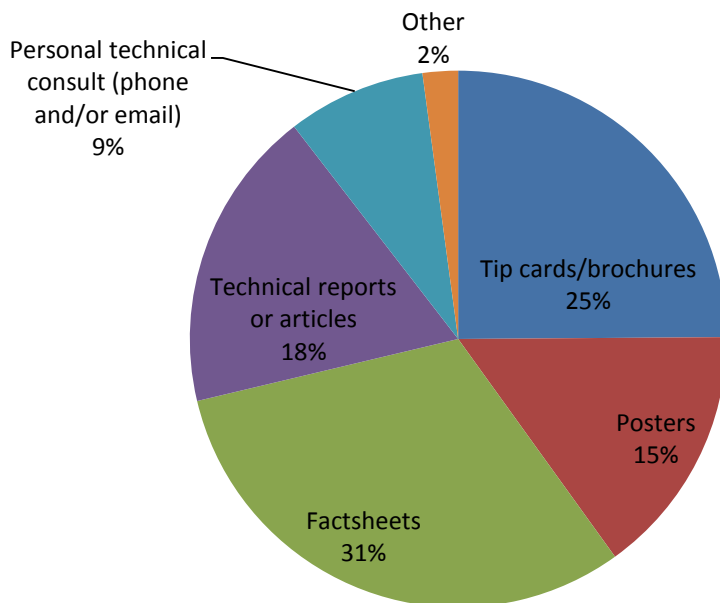
	<u>Count</u>	<u>Write-in</u>	<u>Percentage</u>
Sprains/Strained/ torn muscles	312	1	74.5
Tendonitis or bursitis	273	2	65.5
Torn ligaments	225		53.6
Fractures (stress fractures and broken bones)	184		43.8
Dislocated joints	137		32.6
Blisters	106		25.2
Abrasions or lacerations	53		12.6
Other	36	-3	7.9

**Question 25. How would you like to obtain injury prevention information? (Select all that apply.)**



Computer	572
Mobile device	171
Printed materials (posters, cards, flyers)	292
Other	26

**Question 26. What types of injury prevention information or educational materials would you prefer? (Select all that apply.)**



Tip cards/brochures	397
Posters	242
Factsheets	498
Technical reports or articles	291
Personal technical consult (phone and/or email)	133
Other	34

**Appendix E**  
**Write-In Responses to Select Questions**

**Public Health Report No. S.0023151**

**Question 23.** What types of activities are you most interested in obtaining injury prevention information about? **Responders were provided several choices of activities and were given option to write in any others. The following are the write-in responses for this question:**

Response
boxing
Soccer
Isometric exercises and YOGA
"suck it up and drive on" mentality - avoiding seeking medical intervention for injuries due to being seen as weak/bad Soldier
combatives
Sleep deprivation association. Conditioning.
Truth about supplements; nutrition what the body really needs for recovery
Muscle use & proper techniques related to everyday life tasks in and outside of military duty
MOS specific: heavy weapons repair, mechanic
Supplements
lifting gear - work related
ergonomics/computer use/positioning
Pregnancy
Yoga exercise to reduce rep motion
minimalist shoes
#1: Heat strain monitoring
Martial arts
home ladder use
Workstation injuries/strain/overuse (keyboard, monitor, etc.)
Where's the choice of PRT?
nutrition, sleep
Powerlifting in the military
Back Injury
Rest
back injury prevention
repetitive motion
long periods of sitting
Cycling, Soccer
Walking Programs
Soccer
Diet
Desk Yoga
Low impact aerobics
Krav Maga
Repetitive motion injury - i.e., carpal tunnel
Sitting at computer for lengthy periods of time
long hours seated at desk
Bow Hunting
biking
Dietary
Power Walking
Field Exercises

**Public Health Report No. S.0023151**

Response
hydration, generic core strengthening, cardiac health, desk side fitness tips, motivational posters non branch specific, posters with different list of core exercises to change out that may include bands, balls, kettle bells or just floor work + cardio
long distance walking
Who needs a parachute?
Unit exercises
Back injury
nutrition
resistance training
Impact of metopause/postmetopause on overall health
golf
walking, yoga
running, cardio stuff
Bicycling

**Question 24.** What types of injuries are you most interested in obtaining injury prevention information? Responders were provided choices of several injury types and asked to “Select all that apply”– then had opportunity to write in others. The following are the write-in responses for this question.

Response
burns
general mechanical pain
foot injuries (running/road marching)
Foot Care before and after road marching
sunburn
NOS overuse injuries (PFPS, impingment, mech back pain, etc.)
OA
Back & Core Strengthening
Arthritic pain
overuse
nerve pathology prevention: carpal/cubital tunnel syndrome
back pain
shin splints
Head Injuries
IT Band
Musculoskeletal back pain
migraine headaches
#1 Blood clotting
Overuse
Sprained Ankles, Knee Pain
arthretis
Spondylothesis
concussion
Repetitive use injuries related to workstation equipment
Arthritis
disc herniation

**Public Health Report No. S.0023151**

Response
Anterior Knee Pain (PFPS); Acute Low Back Pain (Mechanical LBP)
muscle recovery
plantar fasciitis
Link between fatigue/stress and all other accidents
injury from seatbelt pressing on shoulder during sudden stop
lower back
Back Injury prevention and treatment
Repetitive Stress Injuries
Head Injuries
Back disc. injuries... not being looked down on for serious profile
Torn Meniscus, chronic patellar tendinitis
Muscle soreness
specific strengthening stretches and exercises to decrease specific injuries. i.e. proper running form and strengthening surrounding knee muscles to reduce knee injuries. Back stretches and proper lifting to decrease back injuries, shoulder exercises...
Life and Limb
Spine
lower/upper injury
joint pain

**Question 28.** Provide the organization or source of any information you have found useful:

**The following are the write-in responses for this question:**

Response
Textbooks
CDC
USARIEM, ACSM
Darnell Army Medical Center @ Fort Hood
New Rules of Lifting for Women; reddit.com/r/fitness
Literature
Running magazine, workout magazine, internet websights/videos
CDC Local University
Website
internet
ACSM, APTA, NATA
Previous PT Clinic info; Runner's World
in clinic handouts
National organization for fitness trainers - not sure of the name and CDC.
SRT
Self made (clinic physical therapist) hand outs
American Physical Therapy Association
workout magazines, running mags, internet material

**Public Health Report No. S.0023151**

Response
NIH, various ortho sites, physical therapy
Internet articles
American Physical Therapy Association
OT/PT
Professional Journals
Up to date, NASCM, ACE
All fitness blogs, t-nation, journals, etc.
<a href="http://orthoinfo.aaos.org/menus/sports.cfm">http://orthoinfo.aaos.org/menus/sports.cfm</a>
Performance Triad, Army Move
There is plethora of info available on the internet from multiple sources. I cannot site one in particular.
Medcase
Livestrong, our medical library at the hospital
Up to Date
Local PT clinic
MEDLINE searches
pubmed, ovid, AMEDD journal
ACSM
AAPA, NATA
up to date patient info
Army MHS
trade magazines, personal training certification
AAFP
Peers who obtain program guides from real academics - UNC made some of my favorites.
Medical organizations
USA PRD, NASM, USAW, ACSM, CrossFit Journal, PoseTech, Catalyst Athletics, Blood and Iron
FM 7-22 ; POSE Method of Running course
AAOS, ASSH
Physical Therapy websites
Musculoskeletal screening and referral tools
online searches
My gym
I have found other providers to be a great source of information.
Sports Advisor;
Multiple internet sources
familydoctor.org
American Academy of Orthopedic Surgeons American Physical Therapy Association
UTD, AFP
AMA
ACSM
PUBMed, Ovid, various professional journal articles and their databases, Google searches



**Public Health Report No. S.0023151**

Response
physical therapy school and continuing education courses and resources (to include peer-reviewed
Am. College of Sports Medicine
sports medicine advisor
American Physical Therapy Association National Strength and Conditioning Association American
up to date, ortho bullets, aafp.org
scandpg.org
Athletic apparel industry
magazines
internet
WebMD, UpToDate
Journal of Orthopedic and Sports Physical Therapy Physician and Sports Medicine
MD CONSULT
AAOS
Google and go looking for them. TrainingPeaks.com is an excellent resource. It is used to track
Internet and Sports Medicine Books
Medical Journals
Physical therapy schools; nutritionist
Medical References
Web MD, Mayo Clinic, Runner's Magazine, Backpacker Magazine
Unit PA
I just looked up information through Google on various topics which I wanted information on.
APTA
web MD Orthopaedic web sites nursing web site
Articles in fitness magazines, Army Times, etc
Andrews Group Orthopedics
Wikipedia
Medscape
none
lexicomp, uptodate, wheeless (online), orthobullets (online)
Fitness websites
AARP monthly magazine
Scientific literature, CDC
NCSA , Runners World
other MTFs and the web
American College of Sports Medicine National Strength & Conditioning Assoc.
Just some handouts about hot weather injuries. I don't know where they came from.
Magazines
Internet
Military One Source
Internet

**Public Health Report No. S.0023151**

Response
ACOEM
ACSM
The main concern with Soldiers is how they are treated by the medical system. Soldiers that go in and
Runner's World magazine and website as well as WebMD.
Research using the EBSCO site
<a href="https://armyfit.army.mil/Protected/">https://armyfit.army.mil/Protected/</a>
Up to Date
American College of Sports Medicine
facebook
WEBMD, Mayo Clinic website
JAMA Patient Pages American Academy of Orthopedic Surgery
Internet, YMCA, Fitness Center, Army Physical Fitness Regulation
None
Physical Therapy Clinic
Journal articles and other research materials.
USAF physical therapist College dance instructor British Royal Marine physical trainers (at USMC OCS)
.
Red Cross, local unit personnel, event organizers (for 5K runs, etc.)
Magazines, professional literature, medical manufacturers/ distributors
Physical therapist, professional massage
Civilian physical therapist
Physical Therapists
on-line resources; magazines
webMD, personal physician, health magazine
Internet, magazines
google
Ovid, Cochrane, MedLine, Doctoral Program in Physical Therapy
Running forums
various exercise websites, for example breakingmuscle.com
Running Magazines/Websites
hospitals
Active.com and other running sites
USARIEM
men's health and other fitness magazines
Google
8th Army MEDDAC passes out posters as well as send information out to the leadership regarding
SOPA
uptodate
CDC
coworkers, trainers, physical therapists, orthopedic surgeons, fellow gym members

**Public Health Report No. S.0023151**

Response
Email
web surfing and online sources: wiki, Mayo, healthline, other googled sources. Also primary and
Natural running center.com, Sock-doc.com, runners world magazine and online,
dr offices and fitness magazines
Armyone
Trade magazines
Department of Health
Personal doctor
Various Websites on Mens Health.
CDC
Websites dedicated to excercising and preparation for PT.
Facebook, CDC, Pinterest, various health publications
google
Journal of Medicine, various scholarly biomechanics studies
WebMD Various medical sites and running sites
web based
WebMD
Web based publications; muscle and fitness, crossfit, healthy living, organic living...
Quick Series brochures
Phuket Cleanse Personal Trainer
<a href="http://www.nonprofitrisk.org/tools/workplace-safety/nonprofit/c2/acc-inc-nm.htm">http://www.nonprofitrisk.org/tools/workplace-safety/nonprofit/c2/acc-inc-nm.htm</a> OSHA
Internet
Grand Valley State University Sports Medicine Clinic, Metro Hospital.
web search
USACRS/C and NSC
ACSM & NSCA
AAFP
internet
Google
Email
The FIT course brought to Ft Stewart Garrison Civilians
internet in general
Various other ergonomic-minded organizations.
U.S. Army's Master Fitness Trainer Course taught by the Army's Proponent for Physical Fitness.
Sport Magazines and a Magazine called "Prevention"
Active.com sports website.
Combat readiness center
Medscape PUBMED
/
Knowledge, Offical Safety Magazine of the US Army

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Response
menshealth
Running Magazine
web info
National Strength and Conditioning Association
Combat Readiness Center Morale, Welfare, Recreation organizations Installation Wellness Center
elitefts.com; t-nation.com; Broscience
human performance resource center, USU, CHAMP, and OTSG R2D
google, Army moves
CDC WebMD MEDSCAPE
magazine articles; word of mouth
General Cold/Heat information.
Centers for Disease Control and Prevention American Academy of Orthopedic Surgeons
Google
Runners magazine
Running only: medical facilities on Fort Drum, New York, and hand out from Basra medical clinic, Iraq
No single source - 'Wheeless orthopedics' is a helpful website for patient education as well as provider
civilian doctor's office
ArmyFit web site, Commercial Wellness Programs from the Internet, Organizations like "YouCanQuit2",
Vanderbilt and Ohio State Sports Medicine
University of South Carolina
N/A
ORARNG State Safety Officer classes, briefings and literature.
Web-based sources (videos and literature) from respected athletes demonstrating proper form for
WEBMD
Military Treatment Facility and Primary Care Manager
google
on line articles
my physical therapist (civilian), runners magazine, Shape magazine
World wide web
Family, friends and peers who are knowledgeable in preventative techniques.
Fox Army Health Center, Redstone Arsenal, AL TRICARE Online
Misc. sites online
Local gym, ArmyFIT, personal trainer, accident prevention training on Army Safety webpage.
web based
Personal doctors
Andrews Sports Medicine, Birmingham, AL
Internet.
google
Online Sources like Army Fit or Physical Fitness Center Newsletters
<a href="https://safety.army.mil/.../">https://safety.army.mil/.../</a>

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Response
chiro, ortho, trainer, school
American Heart Association
web
Army Materiel Command's Health and Wellness Program
various magazines, doctor's office, pharmacy
Running magazines
NA
N/A
OSHA
There are many useful sources of information, on-line or through a physician.
Family doctor, Unit Wellness coordinator
N/A
Physical Therapist's office I was referred to for a hip injury
posters in weightroom; websites
Health Promotion
Internet
HQAMC safety messages
US DOL
WebMD, websites, Google.
Red Cross, Gym membership, personal physician
The glorious internet, source of all information both true and false.
American Academy of Sports Medicine
Various Physical Therapists assigned throughout the Army
ACSM, ACE
internet
Web MD
Unable to give names, just general info over the internet.
orthopedic doctor
YouTube
Mayo, Harvard, CDC, Sports Medicine, AHA, etc., etc.
Personal Doctor
aafp
VA
master Fitness Course
provider, internet, health fair
medical and sports related publications
InjuryFix.com
AMC sends periodic safety messages that often give tips for injury prevention. These are often in the
CDC, AAFM, AAPA
Up to Date, Clinician Reviews, emedicine, several other web sites and sports medicine text books

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Response
Gym, EMT school
Kelly Starret.
Johns Hopkins
2nd BCT DFAC places information out on this kind of stuff
mens health
Stretching techniques on the internet.
Classes
Various running websites/magazines/medical papers. Personal consult with experienced runners.
EMS training
Magazines: Runner's World and Men's Health
Personal physicians and trainers
www.efficientrunning.net
"Starting Strength"/ Mark Rippetoe, for strength training.
Peers
Neck & Back Pain management
Running magazines, various websites
Private doctor
Air force preventative med. Personal trainers, mwr trainers.
Google
"The US Navy Seal Guide to Fitness and Nutrition" - (Deuster, Singh, Pelletier) as well as "Fixing Your
Medical journals
Supervisor safety course.
Muscle and Fitness
Runners World magazine
Facts sheets, posters
Physical Therapist, unit PA, and online search
Typically I have to search many sources and develop my own. This is very time consuming and find
AFHSC
NIH
WebMD
CDC
Internet searches
Fox Army Health Clinic, Redstone HQ AMC G-1 Wellness Division, Redstone AARP Magazine
Funk Gym Xbox, Xbox360, and playstation
Physical therapist
UptoDate, Medscape
PT literature, magazines
web md mayo clinic
WebMed, Military One Source
Orthopedist

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Response
webMD
CALOSHA
exercise websites provide the "how to" on many exercises and suggest ways to help prevent injuries.
American Red Cross
CDC, physical therapist, podiatrist
WebMD, lots of websites on running
NSCA; professional trainers, HCP
Many sites on internet i.e., Web MD and LiveStrong
internet, PCM.
www.cdc.gov
Scholarly articles and Pharm/DME Reps
AAPA
Health insurance and Drs office.
magazines and workout DVDs
Multiple online resources
google
I research online.
American Society of Physicl Therapists
VA Health Clinic

**Question 29.** If you have any other comments you wish to share, please write them in the space below.

**The following are the write-in responses for this question:**

Response
Units do not provide or make efforts on teaching preventive medicine or techniques to help reduce <b>work related injuries. Senior NCO's and Officers are not mentoring younger soldiers on ensuring</b> preventive measures are in place to prevent injuries.
Many Soldiers do not see themselves as athletes and may benefit from long term training strategies since many remain in the military greater than 6 years.
Senior NCO's and officers are not concerned with injury prevention or preventive medicine and informing and teaching younger solders the correct ways on injury prevention and Preventive medicine.
The Army needs to take another look at it's PT program. I see guys everyday who run constantly and we are plagued by LBP and knee pain. Will spend billions in healthcare trying to rehabilitate these guys and then when it comes time for deployment, the best we can do is med board them and then pay them disability for the rest of their lives.
Would like to have printed material for the Army Weight Management Guide (USAPHC TG 358) to hand out to Soldiers on the ABCP (Army Body Composition Program)
One of the biggest problems I see with Army physical training is overuse injuries particularly when it comes to running, rucking and lifting. Excessive running leads to foot, ankle, knee, hip pain and shin splints. Excessive rucking - when Soldiers have to ruck LONG distances (often without proper training) leads to back pain. I am often surprised by the amount of degenerative lumbar spine and disc disease seen in young Soldiers. Performing tire flips incorrectly results in back injury. Commands rarely allow

Response
for a walk to run progression at own pace, time and distance. This leads to re-injury of the same joint.
I believe the army should place more emphasis on core muscle strengthening and isometric exercises, and YOGA.
Injury profiles and risks are very different for the reserve component. I'm now in the NG, but have limited experience here compared to AD. It would be good to compile information specific to the RC, and include psychosocial influence on rates of injury, profiles, etc.
I see a lot of guardsmen telling me that their state's AG has a policy of no competitive sports for PT. This is to decrease acute injury. This seems to be successful but now I see more chronic injury. Without the option of playing basketball soldiers are filling up the PT hour with runs or bike rides that are too long for them. There comes a time when 6 miles is too far when you haven't worked up to it. Therefore I see more chronic/over use injuries that discourages them from doing anything. I see a decrease in esprit de corps. And I see a few more acute injuries as soldiers approaching middle age attempt crossfit since tennis, touch football, basketball, volleyball, and racquetball have been interpreted as "competitive sports" by commander's discretion.
Stop trying to check the box with posters, etc. to cover EVERYONE, and start making complex, detailed products that will actually benefit the soldiers who want to do great things (instead of just coast through life and get max their disability). Realize that you can't make everyone a soldier, and also that some injuries can't be prevented (and realistic, demanding training - which is good - will usually cause some injuries). We should train like we fight, not like Safety Comes First.
Materials geared to Front line leaders, LTs and SGTs, will have the greatest impact on injury prevention at the BN and BDE levels. The critical points (Hazard, Control Measure, How to Implement) should be easily entered into a CRM so that leaders can include them in their safety briefing and follow-up on the effectiveness of their control measures.
PRD and TRADOC have created a variety of sound training, resources and regulation. Why does the AMEDD and to some extent USAPHC not defer to TRADOC and/or incorporate a more collaborative approach to working in current doctrine related to physical training?
Leaders need to be educated. They play a direct role in helping the junior Soldiers prevent and recover from injury. In many cases common sense is lacking. For example, I am treating a patient with an ankle fracture. He is in a cast and on crutches yet was made to walk for PT.
We also need to understand that the new generation isn't as active as the previous one. We have changed our style of training in Basic Training from breaking them down to just allowing them to pass. This completely decreases our physical fitness abilities. I see it everyday in the AIT students. You would think that they would be in great shape, they just finished basic training yet some of them can't run or do good push ups. We need to change our indoctrination standard to building these kids up and educating them as to why this is important.
The U.S. Army Public Health Command needs to address combatives. The final evaluation involves being struck in the head which can and most often does lead to at least a minor head trauma and has a high potential for mTBI. No one learns to "take a punch" by being struck in the head. We do not shoot Soldiers to have them learn to take a bullet, we do not stab Soldiers to have them learn to take a bayonet. Why are we injuring Soldiers and placing them at risk for TBI for training that has no justification? We are screening thousands of Soldiers right now for mTBI but are placing every Soldier at risk for the very same thing during Combatives Level 1 training.
Changing the mentality of injury is a must within the military. Many of my patients report injuries weeks/months/years after the initial injury and the damage has been exacerbated from continued use. It starts with the drill sergeants not wanting to look weak in front of their trainees and extends up through the COC. "Why isn't the commander running? How is he supposed to be a leader if he can't lead from the front?" The commander may have a back or knee injury preventing him from running and instead of looking like he doesn't care, he drives through the pain and sacrifices his health and



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Response
wellbeing for his image. Teaching people that it's okay to seek help because no one is Superman would do wonders for maintaining the fighting force as a whole.
More needs to be done to educate unit commanders on the risks of over training, and not adapting their physical training to meet the needs of today's Army. Roughly 75% of the injuries I treat on a daily basis are due to poor knowledge of physical fitness and the human body, and allowing ill informed soldiers to make decisions regarding the physical fitness/health of those soldiers they are supposedly trying to help improve. The Army needs more physical therapists, not only to treat, but to educate and inform units and soldiers on how to properly conduct training to limit unnecessary injury.
You need to be more specific when you mention supplements. Are you including vitamins and minerals in the supplement category? Or do you mean supplements for muscle building, stamina increasing, and weight loss, etc.?
Recovery and rest relative to physical training is a foreign concept to the military. Leaders at the small unit level need a mindset shift from muscle failure every day of the week to concepts of periodization, recovery techniques, and rest.
Firt Segeants need to be well educated first for any prevention movement to work well at the unit level
Commanders need to hear the statistics of how many profiles (MRC3) are present in the Army due to overuse injuries.
Most of patients that I see are musculoskeletal (low back, knee, shoulder, ankle), and most of them are due to overuse (overtraining). One of the biggest things I see is the leadership not taking care of their 'Joes' and allowing them to modify their training according to their injury.
Education on proper form/technique and how to instruct soldiers is key to decreasing musculoskeletal injuries. Squatting, Dead lifts, Lunges, Running, if the Army continues to allow poor form during formation when these activities are done repetitively, injuries will continue.
I would like to see more information on the effects of weight on injuries... I am convinced that most stress-related injuries from normal pt and most profiles are from Soldiers carrying more weight than their frame was built to handle... I would like to see more effort in analyzing a Soldier's frame and letting him/her know what weight they should be at, not just a simple ht/wt table. Also, for Soldiers that are "bulking up" in the weight room, information on how they can lessen stress on their frame during activities such as running and road marching.
I would like to know what the Army's expectations are with regard to RTD for certain injuries. I have noticed this seems to contrast what I see on the civilian side. Also, when do we really need to consider a profile.
Get rid of the situp event on the APFT. Replace it with something that is not so stressful on the neck, back, and hip areas. Something like crunches or captain's chair raises with knees bent.
The Army should reduce PT to lower impact exercises to include hot yoga and programs like t-25 rather than the high impact exercises. The APFT should also be reduced to once a year and changed to be less strenuous. The leading causes of injury in the Army appears to be situps and running. Also one standard should be adopted and made to be pass/fail rather than a scale. Remove it from the promotion point worksheet. The adopted standard would shift by the current age groups but apply to both male and female equally. Seperate tests should be instituted by MOS to determine viability to work and remain in that MOS.
Interesting survey.
More physical therapists are needed in order to help Soldiers recover properly from injury, thus mitigating the number of injuries/reinjuries.
doc
Good survey!
PT Kills! You said it in your pre-amble to this survey. Competition amongst Soldiers to get the best PT score IOT get promoted ahead of peers leads to oversue, energy and protein supplement use and

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Response
unbalance muscle strength relative to bone structure and habitus. APFT should be job specific minimum competency test related to strength tasks and general cardiovascular fitness (stamina>speed).
Army Strong
The Army's current PT program produces injuries. The program should allow for gentle warm-up exerises prior to stretching, then progressive static stretching, then higher intensity warm-up exercises. Ask professional athletes such as dancers, gymnasts and the British SAS. The high jumper gives too much of a shock to the knees to be a warn-up exercise. ALL PT FORMATIONS ought to have an instructor dedicated to correcting form. No strength exercises (such as push-ups)hould be done at a fast cadence, or in cadence at all, as it encourages the weak to cheat. I have kept my excellent health solely due to me being able to avoid 'Army PT' formations and being able to PT sensibly on my own. I am 53 years old, and can still max the PT test in the young age categories. PT should focus on form and intensity, and not be an exercise in ceremonial structure. Call me at 270.801.6380 if you want more.
Regardless of rank of the patient, the Doctors shoulds treat everyone with respect. If the doctor doesnt know an answer to a question the patient is asking they should ask around and get them the answer. i asked a doctor about a medical issue i was having and they responded with i dont know.
TPU Soldier's who are not close to a MTF have fewer opportunities to work with the active component prior to deploying. The information would be helpful for those individuals to prepare for deployment.
When I was assigned to outpatient clinic on post, we received a great deal of complaints from the active soldiers regarding the 'combatives' class. I believe the training is a good and maybe necessary training but there needs to be better supervision. Those called upon to train the sodiers need to be aware of soldiers not using safety measures with other soldiers, THEY ARE NOT THE ENEMY. A big part of combatives is control and precision.
A good portion of injuries personnel in my unit sustained came from PRT/overuse. That program does not warm the body/muscles up properly and should not be used every day.
the icy parking lot and road this winter there way too many slips and falls. Even if you slip and don't fall a person can hurt themselves. There were broken arms and other injuries from the icy and slippery parking lot.
I think that made-up exercises that are not part of the PRT program or not actual exercises increases the probability of getting injured. Lack of medical attention and the amount of actual medical staff also, in my opinion, forces those injuries to be longer lasting than they need to be, causing soldiers to be on profiles longer, in pain longer and eventually getting chaptered out of the Army.
10th CAB ACAS is a horrible treatment facility and should be closed down.
I suggest parnering with epocrates as they already have an excellent platform and develop a truly useful application for the apple platform
Some of the questions asked were a bit too ambiguous which could lead one to implement their own judgement on what exactly was being implied.
Glad you sent the questionnaire.
your surveys are too long
Leadership shouldn't shy away from tough fitness and sports related training. Educate, encourage, provide training, demonstrate benifits of sports, fitness, competition sponsered in and outside of DoD.
Is anyone conducting surveys or studies on why Soldiers are being recommended for MEBs? Not just diagnostic codes but what were you doing to cause the injury/illness and is there a trend within the same Command(s)?
Keep your online media store going- it is the best method for allowing units to obtain quality media material in a "al a carte" format.
Use the correct term "FOOT MARCHING" vs. "ROAD MARCHING"

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Response
Too many fat soldiers, too many broken soldiers, too many soldiers who do not want to work and double standards male vs. female soldiers. There should be one APFT standard, not male and female.
consider including more information about how sleep and nutrition influence injury prevention
Non-combat related injuries are most common in the military due to an out-of-date, ill informed Physical Training doctrine that does not support the requirements of the job.
The concept of principle involves three components, exercise, diet, and rest. The Army does an excellent job with the exercise component but practically ignore the diet, and rest components. If we are to improve the fitness and overall readiness of the Army we have to consider the diet and rest in our fitness objectives. Lastly, we are too impatient with soldiers after an injury. I have seen soldiers coerced to return from profile or not to seek an additional profile because someone's leader doesn't think it's "necessary". We have to treat soldiers like athletes and allow them the time to recover and restart their fitness regimen. If we continue to accelerate soldier recovery, this will have a cumulative effect which will result in a rise in soldiers who are discharged for physical injuries (I beleieve this is ongoing right now). Everyone recovers at different timetables, we have to listen to the soldiers.
The majority of the Army spends long hours sitting. That can't be good.
I think this is a good idea that can be passed to others around us in our units.
The biggest problem with injuries to active duty soldiers that I see, is the inability to get medical care and a lack of care through physical therapy. PT will only see patients for one issue at a time, even though a single injury may encompass more than one area (e.g. ankle and knee, or hip and back). The medical community is too fast to throw out profiles instead of assisting military members to get back to pre-injury condition. My experience with PT is "just don't run, or do anything and it won't hurt" type of an attitude. Soldiers are athletes, but we are not treated as such. Also, a very large source of injury is untrained PT leaders and utilizing areas for training that are not maintained (holes in field or sprinting on roadways). There should be the development of a physical training MOS.
I would love to see the results of this survey. As a health promotion officer at an installation that may be losing its muskuloskelatal Action Team, these results may provide some ammunition to keep it.
With regards to physical training injuries (other than competitive sports accidents), I believe nearly all injuries are preventable. The biggest issue leading to injuries is lack of knowledge on proper training plans and techniques for exercises. I would recommend that before any Soldier has access to an Army gym, they should take an orientation course on proper lifting techniques. Also, take out all isometric machines from the gym. The human body is not an isometric entity. If you want Soldiers to be athletes and functional, they need to train that way.
Increase pain management capability throughout the Army.
the Army places so much emphasis on pt performance that soldiers wear-out or injure their bodies to such a degree that their deployability is often reduced.
Diet, sleep, and exercise form the triad of preventative healthcare. Any effort that fails to address all three is wasted.
This sounds promising, just don't make it another mandatory on line course for Soldiers to take. There are already too many of those!
I understand injuries are a significant contributor to medical readiness. However, BH needs to be breeched having a significnat impact on readiness within a younger population accessed into the Army. we need this now in our units befor its to late.
The Army should press hard to implement a civilian fitness program and give 60 minutes a day for fitness and stop building and funding smoking facilities, smoking kills, ban it from not only buildings but from all property
The on set of sokdiers with PTSD, are they more prone to having more injuires? A mind set that may set in is that they don't care and would be more porne to not worry about gettin hurt or to the point of living dangerously.

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Response
very informative survey, thanks for sharing...
Appreciate my command taking interest in keeping me safe - even during my off-duty time. Makes me feel loved.
Honor plays a big factor in injuries and their outcome. As a recently deployed S1 I saw Soldiers medevac'd for the most minor, routine injuries because they pushed the issue. Other Soldiers had severe issues (back, joint, muscle) and stayed. If Soldiers are allowed to abuse the system, they will.
please provide more marketing material on the e-catalog that consumers can utilize (pens, notepad- w/ a health tip of the day, key chains, can openers, koozy cup holder, etc. ) Although tipcards and posters are helpful, consumers will likely throw them away.
Nobody should be killed or permanently injured during training. Unit leadership doesn't do enough to prevent this.
In the Infantry, unit physical training is seen as punishment, or a toll that one has to pay in order to exist in the Infantry, rather than as time to improve oneself. There is too much focus on group running, as leaders are not given the option to utilize the gym for strength training, not only causing imbalances that may eventually result in overuse injury, but also prevents further physical fitness improvement. An injury is also frowned-upon, and Infantrymen are often pressured to "suck it up" and "push themselves", often into another, worse, injury.
airborne all the way
The Army does the single worst disservice to its new recruits. It pulls them in, makes them buy shoes without any consult or fitment guidance and then runs them to death without teaching them to run. On the average you won't have any issues until the soldier reaches a more mature age but you do get Soldiers who experience injuries quite quickly. They are then made to feel inferior and marginalized. It is a commonly accepted conclusion that if you can run you are two or three steps ahead of your peers in the Army yet the Army does place any stock in training everyone how to run.
Some of my Soldiers are International Students, Brochures and Cards in Spanish will be a great asset to teach them and their families
I was medically discharged from the Army due to bilateral stress fractures. I believe the entire problem could have been prevented if they would have just let me heal properly in the first place. Over training Is a huge problem I saw it first hand. You get hurt and they just keep pushing you harder and harder and pumping more meds in you until you reach a point of no return where your injury is more severe and you need a lot more recovery time for something that could have been prevented. It's a serious problem that needs to be resolved. I am now in the process of becoming a personal trainer, and heck I would love to be hired by my old company in the 82nd airborne division so I can show them proper ways to train their soldier to be better and stronger and without injury. And it wouldn't require hours of pt a day.
The Army' s continued insistence of running on pavement and the use of sit-ups harm Soldiers contributing to knee and ankle injuries and back problems.
Parachuting is dangerous I wish they wouldn't always have to jump 800feet with a 60+ pound ruck sack. I mean really if I have to worry about carrying a 60 pound bag while jumping in a firefight on a DZ, it wouldn't end up very good.
I am a soldier in Fort Bragg and my unit has lots of soldiers who obtain tons of injuries due to running long distances almost every single day. We can never catch a break from running. Sometimes running 30+ miles a week. The army, and some leaders lack knowledge of how that affects a soldiers health, yet yell at them when they are on profile for injuries they obtained due to leadership forcing them to run so much. Over reaching without allowing the proper rest and recovery time is what leads to all these stress fractures and sprains. Running 7 miles in no way helps a soldier improve his run time and get better. It just increases the risk for injury and makes one miserable. Running two miles and doing interval training has more of a better outcome and can improve a soldiers run time more effectively.

**Response**

We should also consider allowing soldiers to go to the gym to lift weights for PT. Mixing cardiovascular endurance exercises with strength training/resistance exercise will lead to soldiers who are in better shape and have better body composition. In the gym, you have supervision of all your soldiers and can mitigate risks with spotters and controlled weights and ensuring proper form. Myself and lots of other soldiers grow tired of useless PT that has no benefit to us whatsoever.

It has been a long time since I was active duty (1991) - I have recently started running again - this is after 5 knee surgeries, two shoulder surgeries, fusion at L4/L5 L5/S1 and a 60% rating - 20% of that on my L ankle - the remaining is split between my knee and Back (parachute injury). The first time that I tried to run it sent what felt like a jolt of lightning through my joints. I then learned to run with a fore foot (bare foot style) strike and now the only thing that holds me back is my cardio and endurance - I wished someone had "taught" me how to run back when I was active. I always kept up but suffered constant shin splints and constant knee pain. To be able to run pain free has changed my life for the better. I know many in my unit (1/17th 82nd ABN) suffered similar injuries to their ankles and knees. Educating people on how to run to minimize the force on their joints can absolutely make a difference. I certainly hope that is in place these days. Thanks for the chance to provide some feedback, best wishes in your study,

Running everyday is not good for you, especially if you are a paratrooper. Thanks 82nd (abn) division.

Overuse injuries are the biggest problem in my opinion. Overtraining Syndrome is also another issue that is not addressed in the conventional side of the military.

By far in the 31 years I have been in the military, I have seen a rise in Soldiers on profile and most of them have never deployed. Civilians coming into the Army need to be screened better for injuries and then rescreened a year later to see if they lied about ailments and charge them out for defrauding the government. Too many Soldiers are getting out with disability benefits that they had before they came in!! Us old timers are still passing them up on runs, gym workouts, etc...

In the selection of supplementation and increase or decrease risks, it absolutely depends on the supplement. Many OTC supplements are not effective and when not used properly can increase risk. When using quality supplementation specific to goals, it can definitely decrease risk. We need a mobile app that members can use to scan food bar codes to log dietary input and gives recommendations for healthier options, log physical activity via steps or cycled miles and then gives members feedback to improve strength, performance, endurance and longevity. Soldiers are Athletes and we should be fueling and training our bodies like Olympians who are making lifestyle changes that are incorporated into their families and last through retirement. Furthermore, when I have 50 units that I need to send hydration posters to due to national IV fluid shortages, having a limit of only 10 posters at a time, will increase shipping costs, when I have to keep reordering them to get them out to the units prior to Annual Training. Recommend changing shopping cart that allows you to comment on why you need so many copies and what they are going to be used for and then you can assess priority when filling the order. Finally, we need a fitness channel that we can have playing in our gyms that has motivational work-out tips with healthy eating commercials and vice-versa. Use multi-media research to find what interests our target audience and maximize its reaching potential.

Incorporate injury prevention education into computer games. Pay Activision or Electronic Arts big money for "product placement". Focus on games popular with Soldiers

An application (Android and iPhone) with injury prevention information may be more widely used in this age of information at your fingertips

I do not have any additional comments at this time.

I believe also that the PAs need to listen to the patients; and change the priority codes that you use for patients

A lot of my friends/co-workers and I use apps on our smartphones to track or guide fitness. To really reach the most Army personnel you're going to need paper methods for the folks not into new tech,

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Response
and computer/smartphone methods for the folks who are using tech. A guide of tips for stretching, hydrating and exercising that can be viewed on a smartphone app a screen at a time would be cool.
I would be interested in knowing what the Army feels is the optimal weight to be carried by soldier in full combat gear.
Certify Soldiers and Leaders to be an advocate health and nutrition to be able to help small group settings and impact others better.
I used to be extremely fit, and I could run forever. I am a big guy, but I have a smooth running style. I am 6' 2" and 200 pounds. I had a tear in my hamstring about four years ago, as a result of sprinting for PT, and I have been battling that injury ever since. I re-injured it about five times over the next few years. It has been realitively good over the the last 10 months, but I do not even push it anymore. I am so afraid that I will injure it again.
Probably need to llink up with local safety offices. There are many unsafe areas on Ft Sam Houston ( e.g pedestrian crossings).
I am currently rehabilitating from an injury, so this subject is very timely for me.
although many preventive measures are taken to prevent injuries, they still result regardless of how proactive in preventing incidnets, preparing for exercise and while exercising. Truth is no one enters into physical activity with the goal of getting injured, it happens. What needs to be looked at are gross negligence incidents where there is horseplay involved. There are zero injuries when there is no activity...
A web resource would be a solution that could easily be kept up to date with the latest information and users could subscribe so they would be notified of the updates.
Your focus should be on the lack of inititive for Soldiers to perform physical activity. Their focus is on how to get a medical rating for retirment, not how to prevent injuries. The fact that you think Soldiers want to prevent injuries means that you are out of touch with the younger generation. You need a survey on how many Soldiers have permanent profiles that raise their medical retirement rating, and the age of those Soldiers. Then you will see the problem with our Army and the medical field.
Facts and real world stories help to keep interest.
This an important subjetc matter to convserve our fighting strength.